

GENOA CHARTER TOWNSHIP
PLANNING COMMISSION
PUBLIC HEARING
OCTOBER 9th, 2012 (Tuesday)
6:30 P.M.

AGENDA

CALL TO ORDER:

PLEDGE OF ALLEGIANCE:

APPROVAL OF AGENDA:

CALL TO THE PUBLIC: (*Note: The Board reserves the right to not begin new business after 10:00 p.m.*)

OPEN PUBLIC HEARING#1... Review of a special use application, impact assessment and site plan for proposed storage of hazardous materials in above ground storage tanks within existing outdoor storage area.

Planning Commission disposition of petition

- A. Recommendation of Special Use Application.
- B. Recommendation of Impact Assessment dated 9-5-12.
- C. Recommendation of Site Plan dated 9-24-12.

Administrative Business:

- Staff report
- Approval of August 13th, 2012 Planning Commission meeting minutes
- Member Discussion

Adjournment

**GENOA TOWNSHIP
APPLICATION FOR SITE PLAN REVIEW**

TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD

APPLICANT: Transtar Autobody technology

OWNER'S ADDRESS: 2040 Heiserman Dr.

SITE ADDRESS: " "

PARCEL NUMBER: 11-13-100-030

PHONE: 810-220-3014

LOCATION AND BRIEF DESCRIPTION OF SITE:

Manufacturing facility at 2040 Heiserman Dr. Manufacturer of Autobody repair materials.

THE PROPERTY IS OWNED BY: Transtar

BRIEF STATEMENT OF PROPOSED USE:

No change in use. Transtar Autobody Tech develops and manufactures repair materials.

THE FOLLOWING BUILDINGS ARE PROPOSED:

I hereby certify that all information and data attached to and made part of this application is true and accurate to the best of my knowledge and belief.

BY: Mike Westrick

ADDRESS: 2040 Heiserman Dr.

[Signature]
ARCHITECT OR ENGINEER'S SIGNATURE

*AGENT (acting for owner) SIGNATURE

* A letter of Authorization from Property Owner is needed.

Contact Information - Review Letters and Correspondence shall be forwarded to the following:
1.) MIKE WESTRICK of _____ at () _____
Name Business Affiliation Fax No.
mwestrick@tat-co.com

**APPLICATION FOR SPECIAL LAND USE
GENOA TOWNSHIP**

APPLICANT NAME* & ADDRESS: TRANSTAR AUTOBODY TECHNOLOGIES

OWNER NAME* & ADDRESS: 2040 Heiserman Drive, Brighton, MI 48114

SITE ADDRESS: _____ PARCEL #(s): _____

APPLICANT PHONE: (810) 220 - 3000 OWNER PHONE: ()

Location and brief description of site and surroundings:
Transtar Autobody Technologies is located in Genoa Industrial Park.

The surrounding land uses include residential to the north
and industrial to the south, east and west.

Proposed Use:
Bulk storage of solvents and handling system within the mixing department that is critical
to the safety of Transtar Autobody Technologies employees.

Describe how your request meets the Zoning Ordinance General Review Standards (section 19.03):

- a. Describe how the use will be compatible and in accordance with the goals, objectives, and policies of the Genoa Township Comprehensive Plan and subarea plans, and will promote the Statement of Purpose of the zoning district in which the use is proposed.

Proposed action is consistent with land use, zoning and local development plan.

- b. Describe how the use will be designed, constructed, operated, and maintained to be compatible with, and not significantly alter, the existing or intended character of the general vicinity.

Proposed action will not result in any significant changes to the overall visual environment
within the project area.

- c. How will the use be served adequately by essential public facilities and services such as highways, streets, police and fire protection, drainage structures, water and sewage facilities, refuse disposal and schools?

Proposed action will use existing streets and drainage structures and can be served
adequately by essential public facilities.

- d. Will the use involve any uses, activities, processes, or materials potentially detrimental to the natural environment, public health, safety, or welfare by reason of excessive production of traffic, noise, vibration, smoke, fumes, odors, glare, or other such nuisance? If so, how will the impacts be mitigated?

The petitioner will take whatever screening means will be required in order to avoid or
mitigate the impact from potential spills, vapor emissions and fires.

e. Does the use have specific criteria as listed in the Zoning Ordinance (sections 3.03.02, 7.02.02, & 8.02.02)?
If so, describe how the criteria are met.

None

I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE PART OF THIS APPLICATION ARE TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF. I AGREE TO DESIGN, CONSTRUCT AND OPERATE, AND MAINTAIN THESE PREMISES AND THE BUILDINGS, STRUCTURES, AND FACILITIES WHICH ARE GOVERNED BY THIS PERMIT IN ACCORDANCE WITH THE STATED REQUIREMENTS OF THE GENOA TOWNSHIP ZONING ORDINANCE, AND SUCH ADDITIONAL LIMITS AND SAFEGUARDS AS MAY BE MADE A PART OF THIS PERMIT.

THE UNDERSIGNED  STATES THAT THEY ARE THE FREE OWNER* OF THE PROPERTY OF PROPERTIES DESCRIBED ABOVE AND MAKES APPLICATION FOR THIS SPECIAL LAND USE PERMIT.

BY: Mike Westrick

ADDRESS: 2040 Heiserman Dr

*Submit a letter of Authorization from Property Owner if application is signed by Acting Agent.


Contact Information - Review Letters and Correspondence shall be forwarded to the following:

1) Mike Westrick of Transtar Mwestrick@tat-co.com at ()
Name Business Affiliation Fax No.

Note: This application must be accompanied by a site plan review application and the associated site plan review submittal requirements. (The Zoning Administrator may allow a less detailed sketch plan for a change in use.)

FEE EXCEEDANCE AGREEMENT

As stated on the site plan review fee schedule, all site plans are allocated two (2) consultant reviews and one (1) Planning Commission meeting. If additional reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional reviews. If applicable, additional review fee payment will be required concurrent with submittal to the Township Board. By signing below, applicant indicates agreement and full understanding of this policy.

SIGNATURE:  DATE: 8-8-12

PRINT NAME: Mike Westrick PHONE: 810-220-3014

ADDRESS: 2040 Heiserman Dr



LSL Planning, Inc.

Community Planning Consultants

October 3, 2012

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, MI 48116

Attention:	Kelly Van Marter, AICP Planning Director
Subject:	Transtar Autobody Technologies above ground storage tanks – Special Land Use and Site Plan Review #3
Location:	2040 Heiserman Drive – northeast corner of Heiserman and Pless Drives
Zoning:	IND Industrial District

Dear Commissioners:

At the Township's request, we have reviewed the revised submittal requesting authorization for the installation of above ground storage tanks at the existing facility for Transtar Autobody Technologies. The site is located at the northeast corner of Heiserman and Pless Drives, within the industrial park north of Grand River Avenue.

The site and properties within the industrial park are zoned IND Industrial District, while the properties to the north are zoned CE Country Estate. The request has been reviewed in accordance with the Genoa Township Master Plan and Zoning Ordinance.

A. Summary

1. The project is generally in keeping with the standards for a special land use; however, any issues identified by Engineering or Fire must be addressed.
2. The size of the tanks proposed greatly exceeds the 300-gallon maximum allowed by Ordinance.
3. The proposed tanks are located along the side of the existing building and, therefore, do not meet the 75-foot spacing requirement from an occupied building.
4. The applicant has noted they are aware of items 2 and 3 and intend to petition the ZBA for variances.
5. The applicant must provide documentation of compliance with federal and state regulations, per Section 13.07.03. There is also a typo under the applicant's description of secondary containment that must be corrected.
6. The applicant must obtain any outside permits that may be required in accordance with Section 13.07.05.
7. The applicant must provide details on proposed landscaping.
8. A buffer zone "A" is required along the northerly property line. This requirement may be satisfied by the existing wooded area north of the building.
9. Additional screening may be needed to fully screen the proposed tanks.
10. The Township may wish to request details of existing landscaping, waste receptacles, and exterior site lighting to determine whether additional improvements are warranted as part of a new special land use request for a developed site.
11. The truck turning diagram shows a movement that could disrupt Heiserman Road.



View of site and surroundings (looking north)

B. Proposal

The applicant requests special land use and site plan approval for the installation of 6 above ground storage tanks within the existing outdoor storage area. As noted in the “Project Overview” of the revised submittal, the proposal includes a total of 6 tanks, 4 of which have a capacity of 3,500 gallons and the remainder of which are 5,000 gallon tanks. The tanks will contain chemical solvents used in day-to-day operations of the facility.

The Zoning Ordinance lists “accessory fuel storage and use or storage of hazardous materials” as a special land use in the IND. Such uses are also subject to the specific requirements of Section 13.07 of the Township Zoning Ordinance.

Generally speaking, the request for a new special land use on a developed site provides the Township with an opportunity to review the entire site and require needed improvements.

C. Special Use Review

As described below, the project has been reviewed in accordance with the general special land use standards of Section 19.03.

- 1. Master Plan.** The Master Plan and Future Land Use Map identify the site and adjacent properties within the industrial park as Planned Industrial, while the properties to the north are shown as Large Lot Rural Residential.

The Master Plan states that the Planned Industrial classification is intended for “a light industrial/R&D/office park” with high quality buildings and landscaping. The existing use of the property is generally consistent with this description, although the building itself appears to be more of a standard industrial building that does not entirely meet the intent for “high quality building architecture.”

With that being said, this is a developed site and no changes are proposed to the building itself – the project entails above ground storage tanks within an existing outdoor storage yard.

Provided the specific use standards are met, the proposal is generally in keeping with the intent of the Township Master Plan for this area; however, should the site undergo a substantial redevelopment in the future, the applicant should be aware that building/architectural improvements may be necessary to fulfill the goals of the Master Plan.

2. **Compatibility.** The surrounding land uses are generally industrial in nature, although the properties to the north are zoned for and developed with large lot single-family residences. It is worth noting that the residences are quite a distance away from the site and are buffered by a relatively large wooded area.

As noted above, the Zoning Ordinance includes specific use requirements that are intended to ensure compatibility of land uses. So long as these standards are met and the project meets with the satisfaction of the Township Engineer and Fire Department, the proposal is generally anticipated to be compatible with surrounding land uses.

3. **Public Facilities and Services.** As a developed site within an industrial park off of Grand River, we anticipate the property is currently served by all necessary facilities and services. Given the nature of the proposed project, the main concern under this standard will be any comments provided by the Township Engineer and Fire Department. Any issues identified must be addressed to their satisfaction and may be included as conditions if the Township considers approval.
4. **Impacts.** Provided the specific use requirements of Section 13.07 are met and the any issues identified by Engineering and Fire are addressed, the proposal is not expected to adversely impact nearby properties.
5. **Mitigation.** The Township may require that the applicant provide mitigation necessary to minimize or prevent any other negative impacts. The Township may also wish to consider requiring additional site improvements to bring the site closer to compliance with current standards. Common improvements could include additional landscaping, improved site lighting, and dumpster enclosures (if deemed necessary).

D. Specific Use Standards

Section 13.07 identifies specific standards for the installation of storage tanks for hazardous materials, as described below:

1. **Above Ground Storage Tanks.** The Ordinance limits the capacity of such tanks to not more than 300 gallons. Such tanks are also to provide a setback of at least 75 feet from any lot line or occupied building. As noted above, the project proposes 6 tanks with capacities of 3,500 and 5,000 gallons.

In the revised submittal, the applicant states that they intend to seek variances from the Zoning Board of Appeals (ZBA) to allow larger tanks; however, we would like to note that the proposal requires rather extensive variances. The applicant should be prepared to address why they need such large tanks.

In addition, the proposed tanks comply with the setback requirement from all lot lines, but do not provide the required 75-foot spacing from the existing building. This will be another matter for the ZBA's consideration.

2. **Secondary Containment.** The revised submittal notes that a secondary containment area will be provided within the outdoor storage yard along with separation from the stormwater collection. Section 13.07.03 requires that documentation be provided noting compliance with federal and state requirements. It should also be noted that the applicant's comments on this criterion indicate the use of 6,000 gallon tanks, which is not consistent with the rest of the submittal. This is likely a typo, but should be corrected to avoid any confusion.

3. **Below Ground Fuel Storage Tanks.** This standard is not applicable.
4. **Pollution Incident Prevention Plan.** A prior version of the revised submittal included a PIP Plan as required by Section 13.07.04 of the Township Zoning Ordinance.
5. **Permits.** The applicant must obtain any and all necessary permits for this project. Given the quantities proposed, the Section requires a permit from the State Police Fire Marshal Division.

E. Site Plan Review

1. **Dimensional Requirements.** The only dimensional requirement applicable to the proposal is the required 75-foot setback described in Section D(1) above.
2. **Landscaping and Screening.** The revised submittal includes a marked-up aerial photo identifying existing and proposed trees. That proposed includes "multiple" deciduous trees. The applicant must specify the quantity, size and type of tree proposed.

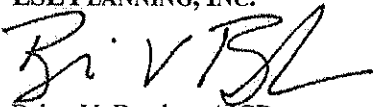
Additionally, a buffer zone "A" is required along the northerly property line adjacent to the residential district. Review of aerial photos identifies a large wooded area north of the building, which may satisfy the buffer zone requirements; however, no details have been provided to confirm whether this is the case.

Lastly, given their size/height, additional landscape screening may be necessary to fully conceal the proposed tanks. The Township standard for outdoor storage is that the height of items stored cannot exceed the height of the screening provided.

3. **Waste Receptacle and Enclosure.** Photos included with the previous submittal showed a large dumpster on the south side of the building that does not appear to be within a required enclosure. The Township may wish to require improvements for compliance with the standards of Section 12.04.
4. **Exterior Lighting.** The submittal does not identify any existing site lighting. The Township may wish to request lighting details to determine whether improvements may be warranted to bring the site into compliance with Section 12.03.
5. **Vehicular Circulation.** The proposed tanks are to be located within the existing outdoor storage area. In accordance with our prior comments, the revised submittal provides a truck turning diagram showing how tanker trucks will enter and exit the area. Our only potential concern is the need to for trucks to stop and back up while still on Heiserman Road as part of the turning movement. Typically, loading and delivery is to be accommodated on site without impacting roadways.
6. **Impact Assessment.** An Impact Assessment (dated 9/5/12) was previously provided. The Assessment notes that the project is not anticipated to create any adverse impacts upon public services, surrounding land uses or traffic.

Should you have any questions concerning this matter, please do not hesitate to contact our office. I can be reached by phone at (248) 586-0505, or via e-mail at borden@lslplanning.com.

Sincerely,
LSL PLANNING, INC.


Brian V. Borden, AICP
Senior Planner



TETRA TECH

September 28, 2012

Ms. Kelly Van Marter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

**Re: Transtar Storage Tanks
Site Plan Review #2**

Dear Ms. Van Marter:

As requested, we have performed a review of the revised Impact Assessment dated September 24, 2012, relating to the Transtar Storage Tank addition project. This site is located on the north side of Pless Drive, just west of Euler. The petitioner is proposing to revise the outside drum storage area to create a spill containment pad for several new bulk storage tanks to be located in the area. The new tanks will contain solvents used in the facility's process, and thereby requires the spill containment zone. We offer the following comments for your consideration.

GENERAL

1. As mentioned in our previous review letter the submittal does not contain a composite site plan drawing showing the proposed tank location in relationship to the existing utilities and structures on the site. The Impact Assessment has pictures that have been notated with the proposed improvements so a general understanding of the work can be obtained. We recommend an as-built site plan be developed and submitted to the Township for the file.

Since the proposed bulk tank storage is being installed within the footprint of the existing hard surfaced drum storage area and includes the installation of secondary containment, we have no engineering related objections to approving the revised impact assessment. We suggest that an as-constructed plan be prepared and submitted to the Township to complete the file for the facility.

If you have any questions regarding our review, please call.

Sincerely,

Gary J. Markstrom, P.E.
Unit Vice President



Brighton Area Fire Department

615 W. Grand River

Brighton, Michigan 48116

810-229-6640 Fax: 810-229-1619

September 25, 2012

Kelly VanMarter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

RE: Transtar Autobody – Storage Tanks
2040 Heiserman
Site Plan Review

Dear Kelly:

The Brighton Area Fire Department has reviewed the above mentioned site plan. The revised plans were received for review on September 25, 2012 and the drawings are dated September 24, 2012. The project is based on an approximately 1,000 square foot above ground storage tank "farm" containing (4-3,500, & 2-5,000) gallon flammable liquid storage tanks. This plan review is based upon the requirements of the International Fire Code (IFC) 2012 edition.

The Brighton Area Fire Authority met with representatives from Transtar Autobody on August 20th, 2012 and went through the site plan and additional documents of the proposed site plan changes. Based upon the content provided within the original submittals and a special meeting, the site plan is conditionally approved, contingent upon the following revisions are made, in addition to all revisions prior to and including this letter.

1. Provide names, addresses, phone numbers, emails of owner or owner's agent, contractor, architect, on-site project supervisor.
2. Resubmit calculations for the tank displacement listed in Section D Specific Use Standards.
3. Proper labeling and signage of tanks and all appurtenances shall be identified on plans. Identification shall include: tank capacity, hazard placard, chemical names. Revise and resubmit SARA Title III reporting materials prior to operation of tanks.
4. All equipment and materials used, shall be listed for its intended use (ASTM, NFPA, IFC, MBC, OSHA, UL requirements apply). Provide listing and details regarding tank construction, containment and safety requirements.
5. All planning and construction shall meet the requirements set forth in Chapters 50 & 57 if the International Fire Code 2012 Edition.

6. All exterior and interior plumbing shall be listed and approved for its intended use.
7. All plumbing and mechanical plans shall be submitted for permit approval to the Livingston County Building Department, in addition to construction plans.
8. Design drawings and specification sheets for storage tanks do not correspond. Resubmit with proper documentation. Provide tank detail drawing that indicates proper required tank construction, include material thickness appropriate for application and called out in summary.

Additional comments will be given during the building plan review process (specific to the building plans and occupancy). If you have any questions about the comments on this plan review please contact me at 810-229-6640.

Cordially,

A handwritten signature in black ink, appearing to read 'R. Boisvert', with a stylized flourish at the end.

Richard A. Boisvert
Lieutenant - Fire Inspector

ABOVE GROUND STORAGE TANKS

TRANSTAR AUTOBODY TECHNOLOGIES

2040 HEISERMAN

BRIGHTON, MI 48114

PROJECT SUPERVISOR

Mike Westrick

V.P. of Operations

Phone: 810-220-30

Cell: 810-434-1358

E-mail: mwestrick@tat-co.com

CONTRACTOR

W.J. O'Neal Company

35457 Industrial

Livonia, MI 48150

Contact: JIM WSZOLA

Phone: 734-266-3302

Cell: 313-218-0785

E-mail: jwszola@wjo.com

GENOA TOWNSHIP

SEP 24 2012

September 24, 2012

Planning Commission

Genoa Township

2911 Dorr Road

Brighton, MI

RE:

TRANSTAR AUTOBODY TECHNOLOGIES – ABOVE GROUND STORAGE TANKS
RESPONSE TO REVIEW

Dear Commissioners:

In response to the summary of site plan review:

A. Summary

1. Transtar Autobody Technologies (TAT) will address any issues identified by Engineering or Fire Marshals.
2. Transtar Autobody Technologies is aware that proposed tanks exceed the 300- gallon maximum allowed by Ordinance and will seek variance from ZBA. The size of the proposed tanks is based on the amounts of the solvents used in manufacturing on the monthly basis and attempt to limit delivery tracks traffic. This project is critical to the safety of the employee and overall efficiency of the business.
3. After closer analysis of the use, additional new business, and to limit the amount of traffic, Transtar Autobody Technologies would like to install two, 5000 thousand gallons tanks and four, thirty five hundred gallons tanks.
4. Transtar Autobody Technologies is aware that the project does not meet 75-foot spacing requirement for occupied building and will seek variance from ZBA based on the fact that it is manufacturing building and after discussing it with Fire Department, it is in compliance with fire codes.
5. Transtar Autobody Technologies will comply with all federal and state regulations and will provide documentation of compliance.
6. Transtar Autobody Technologies will obtain required outside permits.

7. Numerous utilities run through the front of parking lot facing Pless Drive and prevent TAT from planting hedgerow (see included map). However, TAT may plant multiple deciduous trees along Heiserman Road to provide additional screening from off site.
8. A large wooded area north of the building exists that may satisfy buffer zone "A". If required, TAT may plant additional deciduous trees to provide additional screening of site.
9. Transtar Autobody Technologies is aware of the screening requirements for the proposed tanks. TAT will comply with the requirement. TAT is researching possibilities of purchasing tanks of the same volume but different dimensions (shorter) so there will not be need to modify existing fencing. TAT may also add on existing fencing in order to screen tanks.
10. Transtar Autobody Technologies will provide details when requested.
11. Above Ground Storage Tanks will be significantly lower than the elevation line of the building and located inside existing, outside drum storage yard. The yard is 135 Feet long and 107 Feet wide. The yard is surrounded by 9 Feet high chain link fence with vinyl privacy slats. The yard has 20 Feet wide truck gate and 4 Feet man-gate. Heiserman Drive Road is 25 Feet wide and driveway leading to the yard is 20 Feet wide. As mentioned before, yard was used as storage yard and multiple truck delivery vehicles were able to safely maneuver in and out of this area. The bulk solvent, that will be stored inside the tanks, will be delivered by multiple tank truck vehicles. The biggest size of the delivery semitrailer tank will be 45 Feet. The trucks will back up into the yard (90^o turn), unload bulk solvent and then pull out of the yard directly toward Heiserman and than Pless drive (see attached diagrams).

September 24, 2012

Planning Commission

Genoa Township

2911 Dorr Road

Brighton, MI

RE:

TRANSTAR AUTOBODY TECHNOLOGIES – ABOVE GROUND STORAGE TANKS
RESPONSE TO FIRE DEPARTMENT REVIEW

Dear Commissioners:

In response to the summary of site plan review:

A. Summary

1. Please see attached drawing for the location of utilities.
2. Future project submittals will include the name and address of the project.
3. Please see attached.
4. Legends will be provided in future submittals.
5. Transtar Autobody Technologies will label all tanks and piping as required per federal and state regulations. The tanks will have labels with product ID or raiser, quantity and flammable liquid label. “No smoking” signs will be posted in the area of the project.
6. All plumbing and mechanical plans will be submitted to Livingston County Building Department for permit approval by Contractor. Also, list of equipment and materials used will be provided. Drawing will include plans for containment and water retention.
7. Transtar Autobody Technologies will comply with all requirements set forth in Chapters 50 & 57 of the International Fire Code 2012 Edition.

B. Proposal

As described above, the size of the proposed tanks is based on the amounts of the solvents used in manufacturing on the monthly basis and attempt to limit delivery trucks traffic. Transtar Autobody Technologies proposes to install

This project is critical to the safety of the employee and overall efficiency of the business.

C. Special Use Review

1. Transtar Autobody Technologies is aware that in the future building /architectural improvements may be necessary to fulfill the goals of Master Plan.
2. N/A
3. Transtar Autobody Technologies will satisfy any requirements of Township Engineer and Fire Department.
4. N/A
5. Transtar Autobody Technologies will consider recommendations of the Township.

D. Specific Use Standards

1. See point B. Proposal
2. Per regulation [R 29.4209 Section 2-3.3.1], secondary containment is required for the aboveground tanks with a capacity greater than 660 gallons holding flammable and combustible (class I/II/IIIA) liquids. According to “Guide to Understanding Secondary Containment Requirements in Michigan” this can be accomplished by meeting any of the following:
 - Directing any spill or precipitation to a remote impoundment area that is liquid-tight, has a capacity of at least the largest tank, and meets all the rule requirements regarding location, slope, construction, etc. [R 29.4209 Section 2-3.3.2].
 - Providing diking around the tanks that is liquid-tight and meets all the rule requirements regarding location, slope, construction, etc. [R 29.4209 Section 2-3.3.3].
 - Using secondary containment by other methods capable of holding 100 percent of volume of largest tank and meets all the rule requirements regarding construction, etc. [R 29.4209 Section 2-3.3.4].
 - Installing the tank within vaults as long as each tank has its own vault, is liquid-tight, and meets all the rule requirements [R 29.4219 Section 2-13.1].
 - Installing the tank in a special enclosure [R 29.4303 Section 2-2].

The requirement for secondary containment will be met by installing double wall tanks that will be able to hold 100 percent of volume of each tank and meet all the rule requirements regarding construction. In addition, the tanks will be surrounded by liquid tight, non-combustible concrete containment cell to provide additional spill protection. The size of the containment will be 30 feet by 40 feet and 3 feet and 6 inches in height and will meet all requirements regarding construction.

CALCULATIONS

1. SLAB (INITIAL VOLUME)

Length= 40 Feet
Width = 30 Feet
Height = 3 Feet, 6 Inches

Volume of Slab = (Length x Width x Height) = 4200 Cubic Feet
Volume of Slab = 4200 Cubic Feet x 7.48 = 31416 Gallons

31416 Gallons

2. VOLUME DISPLACED BY TANKS

3500 GAL TANK

Tank Diameter= 8 Feet
Tank Height = 9 Feet 6 Inches
Height of Portion of Tank = 3.5 Feet

Volume Displaced by 3500 Gal Tank = $(3.14 \times (\text{Tank Radius})^2 \times \text{Height})$
Volume Displaced by 3500 Gal Tank = 175 Cubic Feet
Volume Displaced by 3500 Gal Tank = 1315 Gallons

5000 GAL TANK

Tank Diameter= 8 Feet
Tank Height = 13 Feet
Height of Portion of Tank = 3.5 Feet

Volume Displaced by 3500 Gal Tank = $(3.14 \times (\text{Tank Radius})^2 \times \text{Height})$
Volume Displaced by 3500 Gal Tank = 175 Cubic Feet
Volume Displaced by 3500 Gal Tank = 1315 Gallons

Volume Displaced by All Tanks = 6 x 1315 Gallons = 7892 Gallons

7892 Gallons

3. VOLUME LOST DUE TO PERCIPITATION

According to "Guide to Understanding Secondary Containment Requirements in Michigan", Michigan worst case for run-on is 24-hour rainfall event that happens every 24 years; about 4.5 inches of rain.

Rainfall = 4.5 Inches = 0.38 Feet

Volume of Water due to rainfall = 30 Feet x 40 Feet x 0.38 Feet = 456 Cubic Feet

Volume of Water due to rainfall = 456 Cubic Feet x 7.48 = 3410 Gallons

3410 Gallons

4. NET VOLUME AVAILIABLE FOR SECONDARY CONTAINMENT

Net Volume = Slab Volume – Volume Displaced By Tanks – Precipitation

Net Volume = 31416 Gallons – 78892 Gallons – 3410 Gallons = 20114 Gallons

20114 Gallons

Regulations require secondary containment for tanks to contain 100% of the largest tank plus volume occupied by other tanks. The largest tank is 6000 Gallons. Therefore, the secondary containment is adequate.

ABOVE GROUND STORAGE TANKS IMPACT ASSESMENT

TRANSTAR AUTOBODY TECHNOLOGIES

2040 HEISERMANN

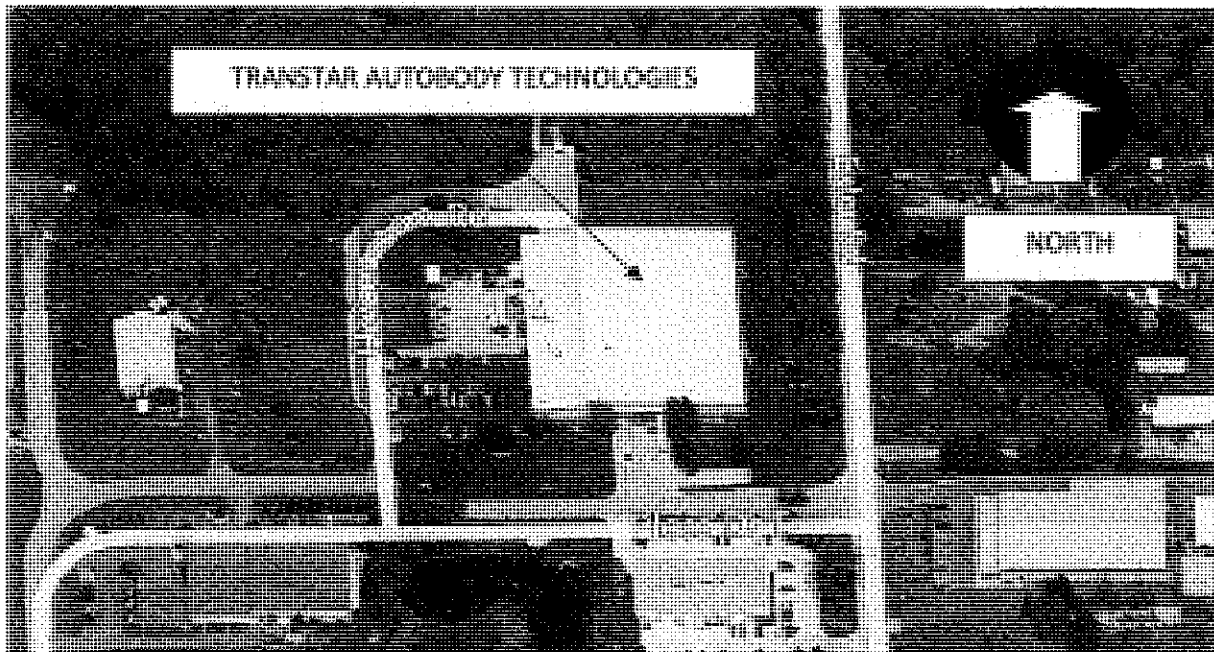
BRIGHTON, MI 48114

September 5, 2012

1. Map and written description/ analysis of the project site.

Transtar Autobody Technologies (TAT) located at 2040 Heinemann Drive, Brighton, MI 48114 is a part of the Genoa Industrial Park, located in Genoa Township, Livingston County, Michigan. TAT is located on part of the West ½ of the NW ¼ of section 13 described as: Beginning at the NW corner of section 13, thence S 89°41'06" E. along the North line said Section 13, 681.5 ft, thence along the centerline of Euler Rd. R.O.W., 665.0 ft; thence N 89° 41'06" W along the centerline of Pless Drive R.O.W., 736.6 ft; thence N 0°3'25" W. 665.0 ft. containing 10.10 acres of land. The Transtar Autobody Technologies, Inc. site is located in a mixed industrial/commercial/residential area approximately 1 mile north of Interstate 96 and less than ¼ mile north of Grand River Avenue on Heisserman Drive in Brighton, Livingston County, Michigan. The facility is bordered to the west by Heisserman Drive and another industrial facility, to the north by forested area and rural residential properties, to the east by Euler Road and commercial and rural residential areas and to the south by Pless Road and mixed industrial and commercial properties. The site and properties within the industrial park are zoned IND Industrial District, while properties to the north are zoned CE County Estate.

Employees access the facility via the employee entrance on the western side of the building which has a key punch for a security code. Visitors access the facility via another entrance on the western side of the building located south of the employee entrance. Vehicles can access the facility through the Shipping Dock on the southern side of the facility off Pless Road, a Receiving Dock on the northern side of the building and a gate for the Drum Storage Yard on the western side of the facility. Dumpster is also located on the southern side of the facility off Pless Road. Employee and visitor parking are located on the western side of the facility.



View of site and surroundings (looking north)

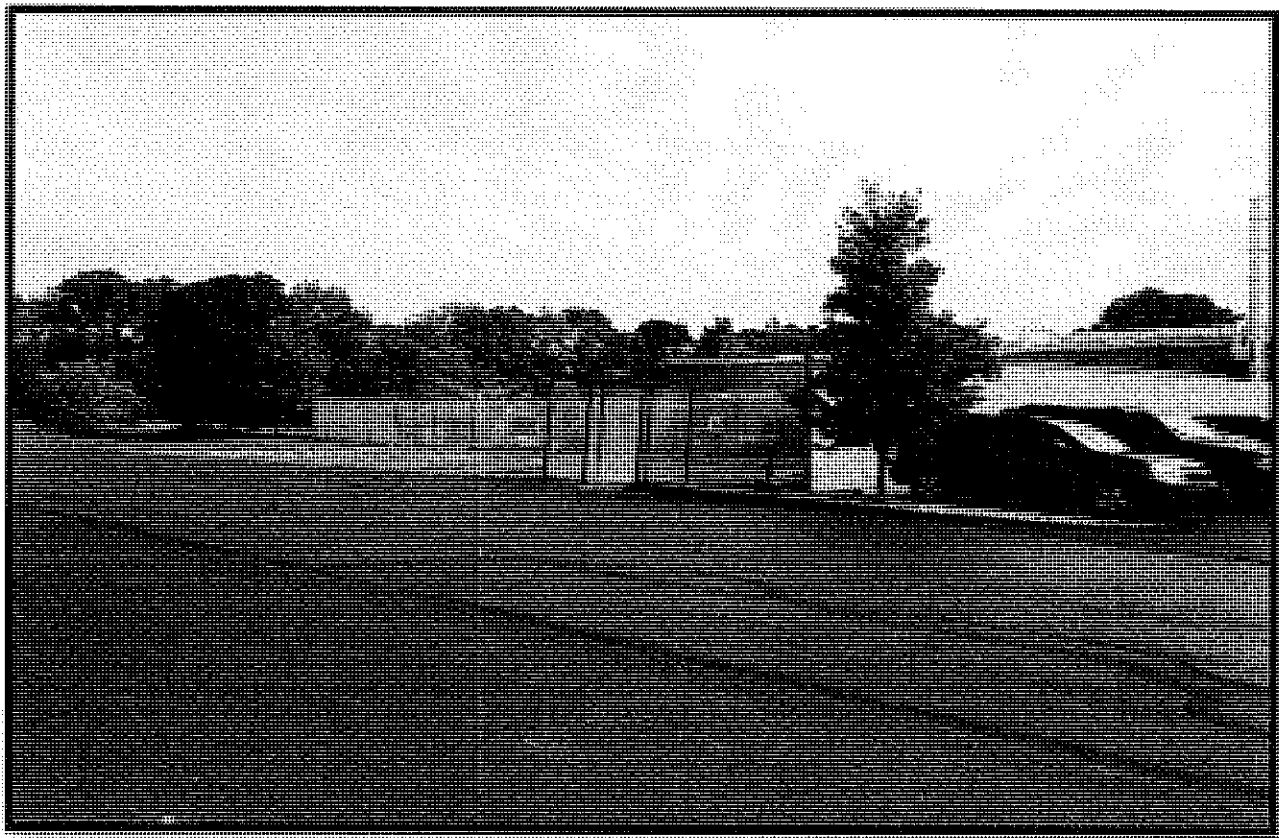
Transtar Autobody Technologies, Inc. facility manufactures automotive refinishing/aftermarket products including undercoating's, sealants, coatings, full line plastic repair, compounds, glazes, adhesives, waxes, polishes, cleaners, paint additives, and automotive paints including volatile organic compound (VOC) compliant clearcoats and primers. Currently manufacturing operation includes intermediate bulk containers (IBCs) or totes, drums, portable tanks, and bag storage. These containerized materials are processed in the production area into the finished materials that are stored in drums, bulk containers, and consumer packages. A facility plot plan showing the access routes to the site, property line, on-site buildings, and areas where oil, oil-related materials and polluting materials are transferred or stored is included as Figure 2.

Above mentioned product lines are batch manufactured using manual labor. During manufacturing process, over 4500 drums per year are handled multiple times manually. Automated Solvent Storage System was planned since the inception of the plant to improve the safety of the employee. This project is critical to the safety of the people and overall efficiency of the business.

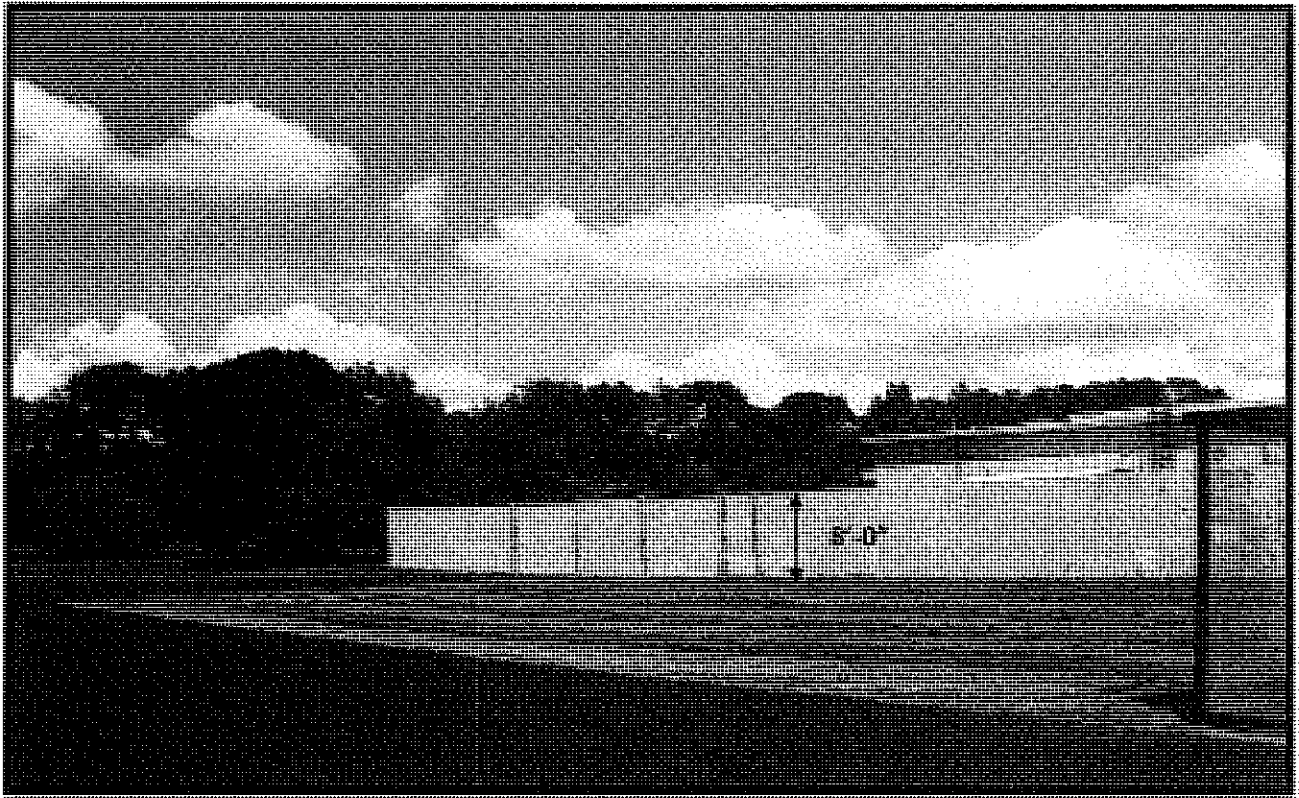


View of site from the corner of Pless Drive and Heisserman

The proposed bulk storage facility will include six (6) above ground solvent storage tanks, unloading area and automated solvent piping plumbed directly to mixing stations located inside the building. The proposed system will be located inside the Drum Yard Storage Area of the facility, in place of the existing catalytic incinerator. Proposed action will not alter the appearance of the surrounding area. Tanks will be six – eight feet wide (6' - 8') and about ten to twelve feet (10'12'') tall, painted white. The tanks may be slightly taller than the fence but overall will not change visual appearance of the area. The proposed action also will not affect existing landscape. None of the trees is planned to be removed. The ground will not be broken in. The action will take place on the existing concrete covered pavement. The action also will not conflict with the existing utilities. Map of utilities included in the appendix.



View of Drum Yard from Heisserman



Another View of Drum Yard from Heisserman



View of Drum Yard inside

2. Impact on natural features.

Proposed action is consistent with the land use, zoning and local development plan and will not impact existing wild life and vegetation. The petitioner will take all measures to eliminate the risks and adhere to all rules and regulations governing aboveground storage tanks. Tank construction will be according to API 650 and ASME standards. Tanks will be lined with solvent resistant liner to prevent corrosion and potential failures. In addition, product level monitoring system and automatic shut off controls will be installed in the tanks to eliminate potential of overfilling or spill. Additional guidelines to the prevention of potential leakages and/or spillages that could impact natural features will include:

All fuelling will be only be conducted on surfaces provided for this purpose;

Containment areas will be installed in all operational surfaces;

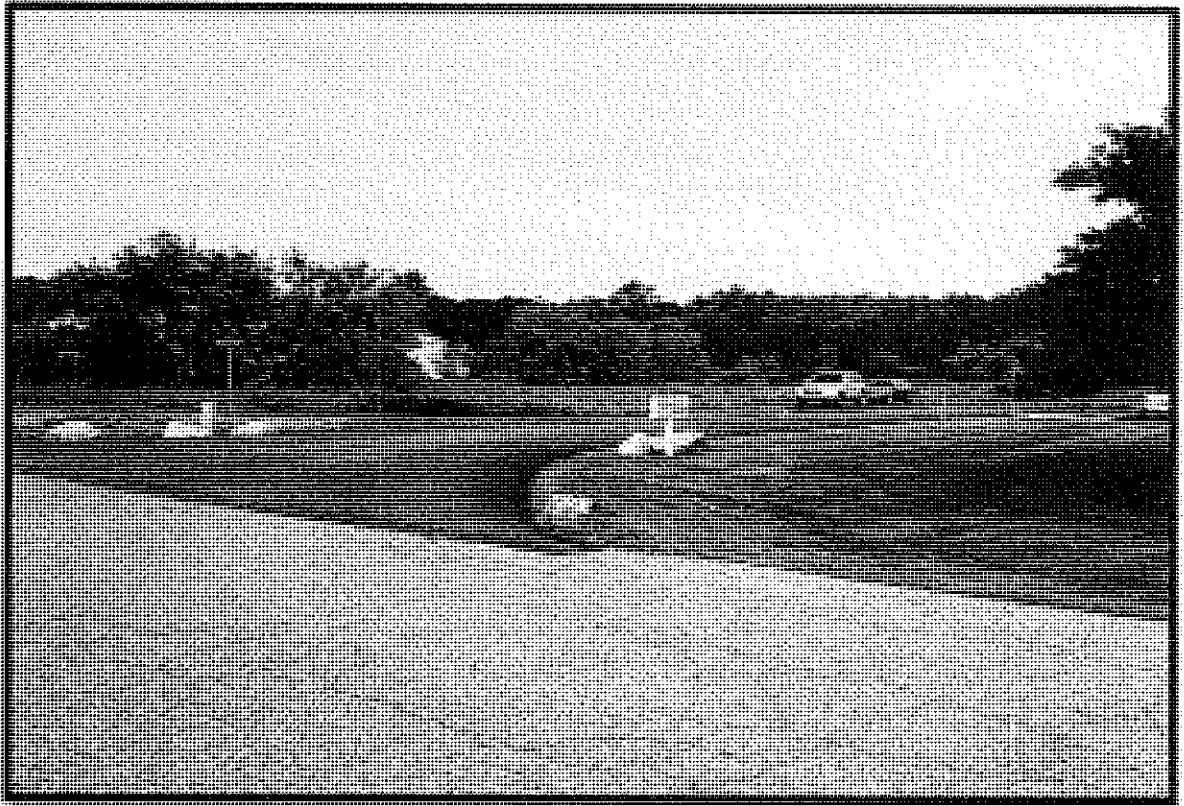
Spillage control procedures (Integrated Spill Prevention Plan) will be in place according to federal and states regulations or better;

The procedures followed to prevent environmental damage during service and maintenance, and compliance with these procedures, including the correct use of pumps and regular reporting of spillages will be audited and corrections made where necessary;

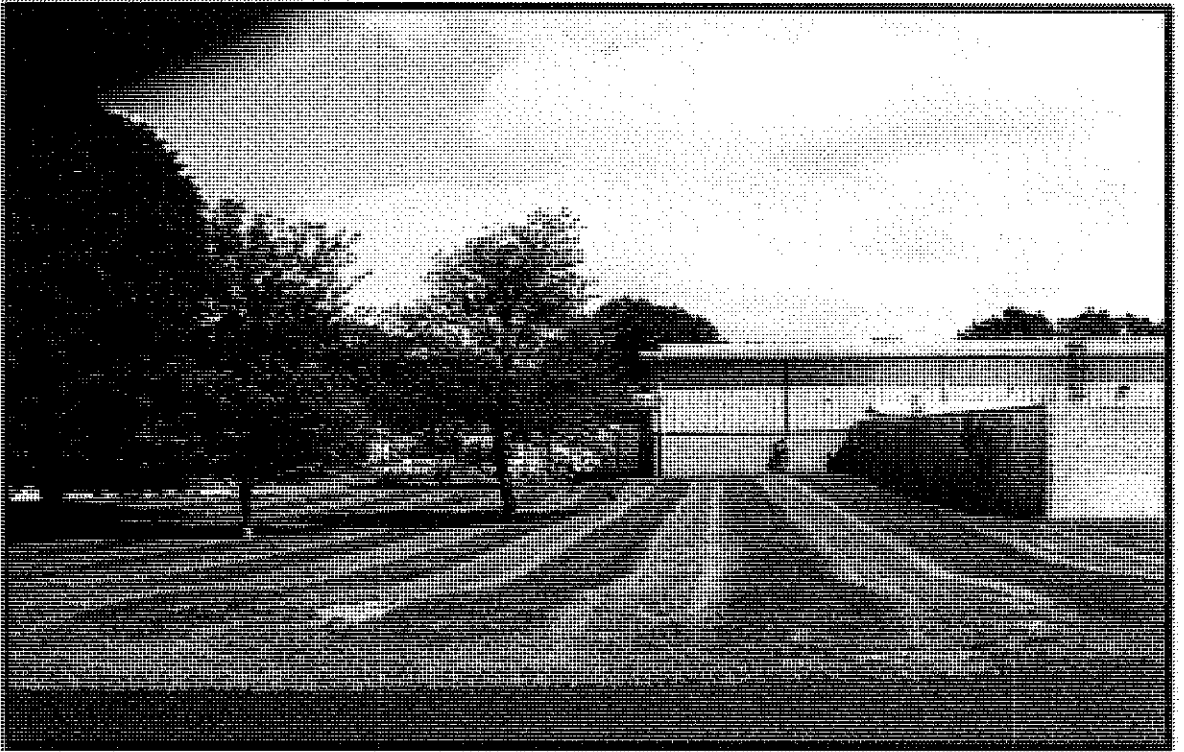
Proper training of operators will be conducted on a regular basis;

Any spillage of more than 55 gallons will be reported to the relevant authorities;

Equipment and materials to deal with spill cleanup will be readily available onsite and staff will be trained in the usage of these products. All fire precautions and fire control at the bulk fuel storage facility will be in accordance with State and Local Fire regulations, or better. Documentation of compliance with federal and state requirement will be provided per request.



Surrounding Landscape- (Corner of Heisserman and Pless)



North west side of the building



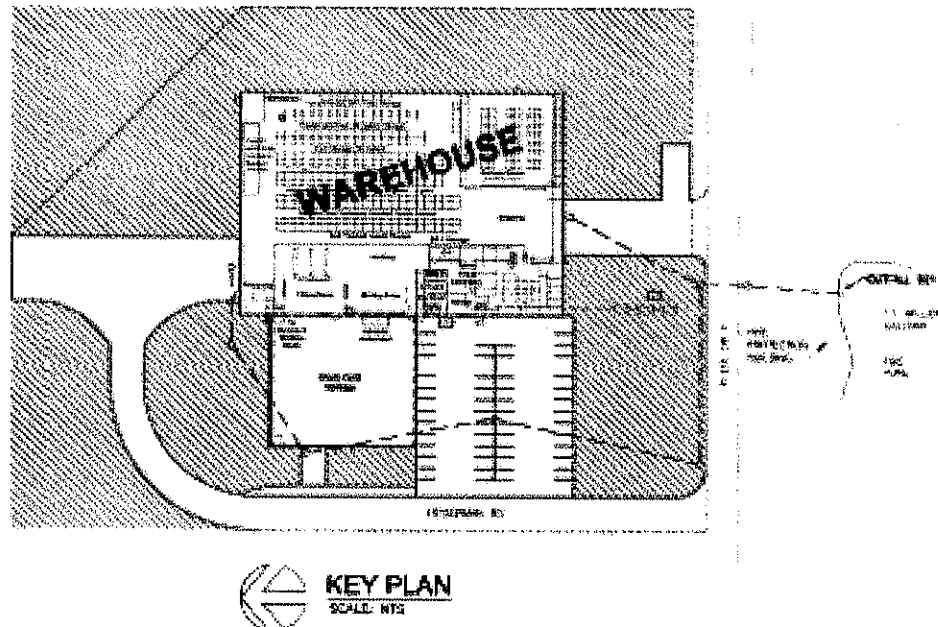
South side of the building. Dumpster location.



View of facility from Pless

Proposed action will not impact storm water management for the facility. Proposed action will take place on the concrete covered yard managed under storm water prevention plan (SWPP).

Picture 3. Current Drain locations.



3. Impact on public facilities and services.

Proposed action will not have impact on public facilities. Public services; State and Local Police Department, Fire Marshall, Local Fire Department and Livingston County Health Department will be notified about proposed action. The petitioner will take all measures to adhere to all rules and regulations required by the public services.

4. Impact on public utilities.

Proposed action will not have impact on public utilities. Please see map for location of utilities.

5. Storage and handling of any hazardous materials.

Proposed tanks will store Acetone, Toluene, Methyl Isobutyl Ketone, Xylene, N-Butyl Acetate and mixture of solvents (Reducers).

6. Impact on Traffic and Pedestrians.

Proposed action will not have impact on local traffic and pedestrians.

7. Special Provision.

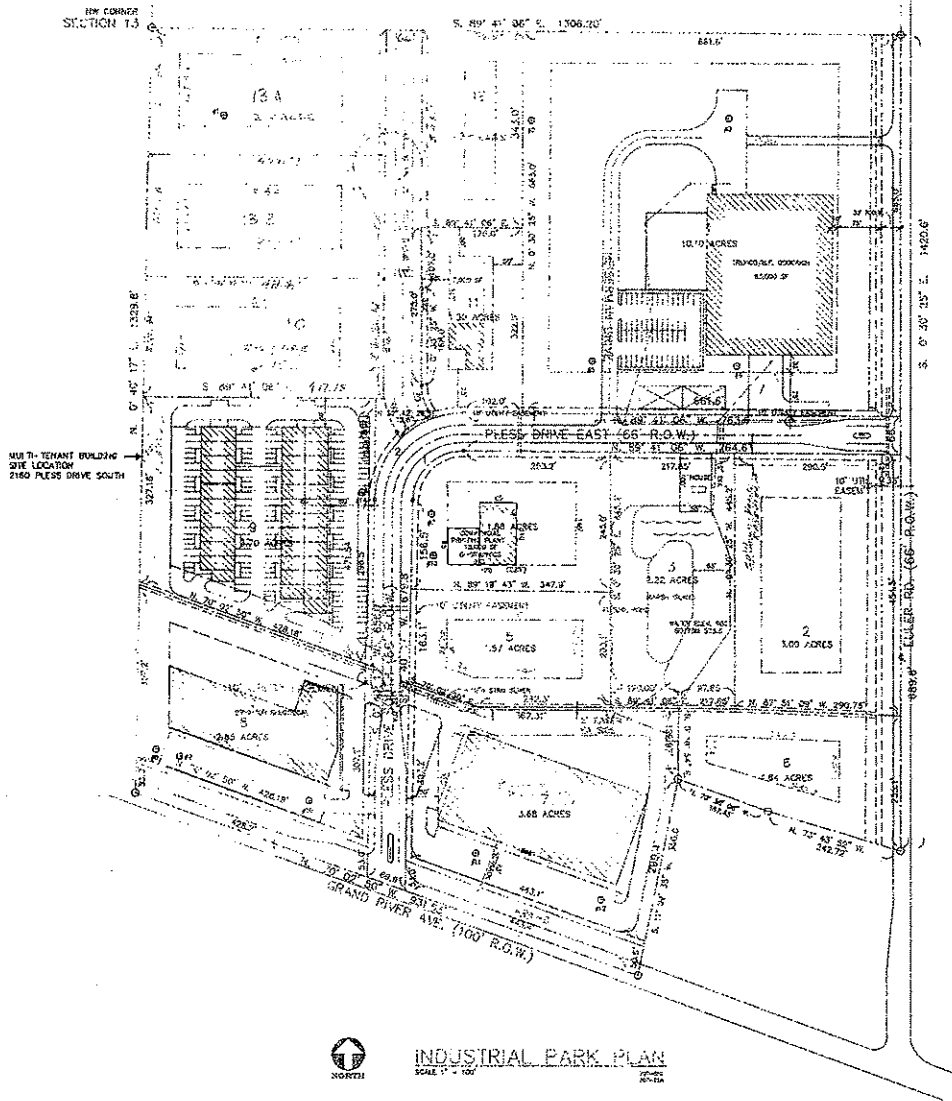
None.

TRANSTAR AUTOBODY TECHNOLOGIES BUSINESS OVERVIEW

Transtar Autobody Technologies (TAT) located at 2040 Heiserman Drive, Brighton, MI 48114 and part of the Genoa Industrial Park, located in Genoa Township, Livingston County, Michigan. TAT is located on part of the West ½ of the NW ¼ of section 13 described as: Beginning at the NW corner of section 13, thence S 89°41'06" E. along the North line said Section 13, 681.5 ft, thence along the centerline of Euler Rd. R.O.W., 665.0 ft; thence N 89° 41'06" W along the centerline of Pless Drive R.O.W., 736.6 ft; thence N 0°3'25" W. 665.0 ft. containing 10.10 acres of land. Transtar Autobody Technologies, Inc. site is located in a mixed industrial/commercial/residential area approximately 1 mile north of Interstate 96 and less than ¼ mile north of Grand River Avenue on Heiserman Drive in Brighton, Livingston County, Michigan. The facility is bordered to the west by Heiserman Drive and another industrial facility, to the north by forested area and rural residential properties, to the east by Euler Road and commercial and rural residential areas and to the south by Pless Road and mixed industrial and commercial properties. The site and properties within the industrial park are zoned IND Industrial District, while properties to the north are zoned CE County Estate.

Transtar Autobody Technologies, Inc. facility manufactures automotive refinishing/aftermarket products including undercoating's, sealants, coatings, full line plastic repair, compounds, glazes, adhesives, waxes, polishes, cleaners, paint additives, and automotive paints including volatile organic compound (VOC) compliant clearcoats and primers. Currently manufacturing operation includes intermediate bulk containers (IBCs) or tote, drum, portable tank, and bag storage. These containerized materials are processed in the production area into the finished materials that are stored in drums, bulk containers, and consumer packages. A facility plot plan showing the access routes to the site, property line, on-site buildings, and areas where oil, oil-related materials and polluting materials are transferred or stored is included as Figure 2.

Above mentioned product lines are batch manufactured using manual labor. During manufacturing process, over 4500 drums per year are handled multiple times manually. Automated Solvent Storage System was planned since the inception of the plant to improve the safety of the employee. This project is critical to the safety of the people and overall efficiency of the business.



GARBUTT INDUSTRIAL PARK GENOA TOWNSHIP, MICHIGAN

CURVE DATA

NO.	RADIUS	CENTRAL ANGLE	ARC	CHORD	BEARING
1	87	87°00'00"	136.1	128.60	S 25°29'30" W
2	150	89°30'37"	248.4	215.7	S 45°59'30" W
3	87	72°13'00"	48.9	45.3	N 16°34'28" W
4	87	72°13'00"	48.9	45.3	N 16°34'28" W
5	87	89°30'37"	136.0	122.5	N 45°59'30" W
6	150	87°00'00"	238.9	215.4	N 25°29'30" W

LEGAL DESCRIPTION:
 Part of the West 1/2 of the NW 1/4 of Section 13, T. 2 N., R. 5 E., Genoa Township, Livingston County, Michigan, described as: Beginning at the NW corner of said Section 13; thence S. 87°41'00" E., along the North line of said Section 13, 1366.20 ft.; thence S. 0°30'25" E., along the centerline of Euler Rd. R.O.W., 1420.6 ft.; thence N. 73°43'52" W., 242.72 ft.; thence N. 70°38'08" W., 167.65 ft.; thence S. 11°09'35" W., 350.0 ft.; thence N. 70°02'50" W., along the centerline of Grand River Ave. R.O.W., 931.53 ft.; thence N. 0°40'17" E., along the West line of said Section 13, 1329.8 ft., to the point of beginning; containing 43.9 acres of land, more or less, subject to the rights of the public over the Easterly part as used for the Euler Rd. R.O.W. and the Southerly 50 ft. for the Grand River Ave. R.O.W.



PROJECT: Subdiv./Garbutt Industrial Park
 Grand River & Euler Road
 Brighton, Michigan

OWNER: Garbutt
 Architects / Engineers

Brighton, Michigan (313) 227-3728
 Brentford, Florida (813) 794-2993

PLAT PLAN
 WITH BUILDINGS

Job No: 87007
 Date:
 Drawn:
 Approved:
 Owner's App:

Issued for: City
 PRELIM 1-29-88
 REVISION 8-25-88

Sheet Number
 S-1

AUTOMATED ABOVE GROUND STORAGE TANKS - PROJECT OVERVIEW

Currently, Transtar Autobody Technologies manually handles and dumps over 4500 drums of solvents per year during its manufacturing process. Currently, the drums are stored inside the facility and inside of the Drum Storage Area. This project plan includes the addition of six (6) above ground storage tanks inside Drum Storage Yard. This will limit the amount of solvents currently stored in drums that needs to be handled manually. TAT plans to add four (4) tanks, 3,500 gallon each (9'6" high with double bottom, 8'in diameter) and two (2) tanks, 5000 gallons each (13'4" high with double bottom, 8'0" in diameter). The tanks will be vertical, double wall (UL-142), steel storage tank. Each tank will be fabricated from mild carbon steel with a flat-flanged bottom inner head, a flat bottom outer head and a flat top. Inner tank walls and bottom will be constructed with 7 gauge steel; tank top will be constructed with 7 gauge steel; outer tank walls from 10 gauge min. and outer bottom with 7 gauge steel. Double wall tank will be fitted with a monitoring tube the height of the tank and topped with 2" diameter threaded fitting for monitoring the interstitial space between the inner and outer walls. See included drawings for details.

Tank installer will be responsible for installing an interstitial monitoring system or owner shall be responsible for checking the interstice on a weekly basis and assuring written record of such checks. Interstitial monitoring tube will be provided with a warning label identifying it as a monitoring tube only.

All items included in tank unit will be commercial grit blasted (SSPC-6 standards), then promptly coated with an epoxy grey primer (10 mils min.) and finish coated with a white urethane (10 mils min.).

The tank unit will be manufactured in conformance with Underwriters Laboratories' UL-142 specifications and so labeled. The tanks will be also labeled "Flammable Liquid," "Combustible Liquid" or according to NFPA 704 and will have product ID label and quantity label.

Tank top will be supplied with (4) 4" threaded fittings every 90° on a 26" radius and (1) 6" threaded fitting at the top center point for emergency venting purposes. Additionally, (1) 6" interstitial emergency vent fitting assembly will be provided at 315°. Thread protectors will be inserted in all threaded openings prior to shipment.

Tank will be air tested at the factory in accordance with UL-142 standards, and will be retested at the jobsite by the installer prior to installation in accordance with applicable NFPA standards and according to manufacturer's test instructions. Outer tank will not be directly subjected to air pressure except via valves releasing test pressure from the inner tank. Tanks will be supplied with ant siphon, 4" normal vents able to relieve excessive internal pressure and normally closed 6" Emergency Vents: for inner and outer tanks. The tanks will be registered by Michigan Department of Environmental Quality (MDEQ) before placed in service.

The storage tanks with their containment will be located inside existing fenced Drum Yard Storage Area in place of currently existing catalytic incinerator (RTO). The catalytic incinerator was taken out of service in March 2012 with the approval of Michigan Department of Environmental Quality, Air Quality Division and will be removed from the property before the projects starts.

The tanks and the pumps will be seated on concrete housekeeping pads, adjacent minimum 3 feet from each other and 10 feet from the building. The tanks will be surrounded by liquid tight, non-combustible concrete containment cell to provide for additional to double wall spill protection. The size of the containment will be 30 feet by 40 feet and 3 feet and 6 inches in height. Total capacity of the secondary containment will be 20114 gallons. The Drum Yard Storage Area is surrounded on the western and northern side of the facility by 4" curb and protected by nine foot chain-link security fence, a 10 foot concrete wall on the southern side, and 1 hour fireproof building as the eastern wall. There are vehicle and personnel gates on the western side of the Drum Yard.

There will be 3 levels of liquid containment in order to prevent any inadvertent environmental discharge. The Drum Storage Yard is the tertiary level of containment that collects storm water as well as any inadvertent discharge and was put in place for the current portable containers. The storm water containment consists of an underground holding tank and all storm water from the drum yard drains to it. The storm water vault is inspected prior to removal or release. Just to reiterate, there are two other containment areas for this project: 1. Secondary containment wall and the primary double walled tank. However, to ensure there is no discharge all collected water is pre-tested. The process is as follows: The notification that the vault is full is initiated by the mixing department by notifying the maintenance department. The maintenance department goes out to the drum yard and grabs a representative sample from the underground vault and takes the sample to Quality Control (QC). QC uses the TAT Test Method 500: Storm Water testing procedure and evaluates for color, sediment, oil, and unusual odor. If the storm water passes this means that the sample has no separation, no excessive sediment, odor, or foaming for longer than 10 seconds. QC then lets Maintenance know that the accumulated storm water in the underground holding tank can be released via a wrench valve to the storm water drainage system and Outfall 001 to the Fire Pond. If the sample fails, QC informs the maintenance and EHS departments that the test failed and the storm water is removed via pumping to tanker or container and disposed in accordance with local, state and federal regulations. The testing records are maintained by QC. The secondary containment around AST will have manually operated sub pump. Since the drain will not be directly connected to storm water drain, NPDES permit is not required. However, Transtar Autobody Technologies will update existing permit to include the change. The same procedure will be used to manage rain water as for the Drum Yard Storage Area.

The Drum Yard will also serve as secondary containment area during truck unloading. The tanker will back up into the yard through open vehicle gate. The width of the driveway leading to the yard is 20 feet and the width of the Heisserman Drive leading to it is 25 feet. From the past experience and based on tank truck turning characteristics the tanker truck can safely navigate their way to the proposed storage tanks.

Unloading of the tanker will be according to the Tank Truck Unloading Procedure (see attached). Each tank will be equipped with stainless fill tubes. The tanks and manifold will be protected from vehicle damage by installation of bollards. Each bollard will be made of 6" diameter steel pipe, filled with concrete. The bollards will be spaced no more than 4 feet from each other.

Each tank will be equipped with air diaphragm product pump. Each pump will be equipped with relief valve and positive shut off on both sides. Carbon steel, liquid tight, protected against corrosion piping will be installed and will connect tanks with the four filling stations located inside the plant. The piping system will be tested before placing in service. Any pipe support will be constructed of non combustible, galvanized material. New piping will be prime painted and finished with identifications labels. Tanks and piping will be grounded and bounded.

Dispensing of each product inside the building will be controlled by turning on the respective air operated pump and opening a normally closed solenoid valve. The control and metering of the system will be provided by a programmable logic controller and HMI operator interface touch screen. Each of the four (4) dispensing stations will have independent HMI operator stations which allow the operator to select the product and quantity for dispensing. The HMI will have start/stop/pause functions to control the delivery of product. The solenoid valves are explosion-proof failsafe normally closed valves. In the event of a power failure or initiation of an emergency shutdown pushbutton action, the pumps will stop by closing air solenoids removing air pressure from the pumps and the valves will be de-energized and close. An alarm will be reported at the main control panel and the system will require a manual reset at the main panel in order to re-start. Operating procedure will be written and operators will be trained on operation and spill prevention upon completion of installation.

MATERIALS THAT WILL BE STORED

TANK 1-ACETONE

CAS 67-64-1
NFPA 130
Flash Point 0 °F
Boiling Point 133°F
LEL 2.6%, UEL 12.8%
Storage Volume - 4000 gallon

TANK 2-TOLUENE

CAS 108-88-3
NFPA 230
Flash Point 40 °F
Boiling Point 231.1 °F
LEL 1.1%, UEL 7.1%
Storage Volume - 4000 gallon

TANK 3-XYLENE

XYLENE, CAS 1330-20-7
CONCENTRATION $\geq 70\%$ - $< 80\%$
ETHYL BENZENE, CAS 100-41-4
CONCENTRATION $> 20\%$ - $< 30\%$
NFPA 230 Flash Point 77 °F
Boiling Point 280 °F
LEL 1.0%, UEL 6.6%
Storage Volume - 2000 gallon

TANK 4-METHYLISOBUTYKETONE

CAS 108-10-1
NFPA 230
Flash Point 72.99 °F
Boiling Point 240 °F
LEL 8.0%, UEL 12.0%
Storage Volume - 2000 gallon

TANK 5-n-BUTYL ACETATE

CAS 123-86-4
NFPA 230
Flash Point 81 °F
Boiling Point 259 °F
LEL 1.2%, UEL 7.5%
Storage Volume - 2000 gallons

TANK 6-REDUCERS

(MIXED SOLVENTS)

Three different Reducers (Slow, Medium or Fast), will be stored at different times, depending on need. The reducers are compatible with each other.

MIXTURE OF : ETHYL ACETATE (1% - 65%) CAS 141-78-6; n-BUTYL ACETATE (15%-60%) CAS 123-86-4; TOLUENE (15%-25%) CAS 108-88-3; PROPYLENE GLYCOL MONOMETHYL ETHER ACETATE (5%-20%) CAS 108-65-6.

NFPA 230
Flash Point 25 °F
Boiling Point 171 °F - 295 °F
LEL 1.1%, UEL 11.5%
Storage Volume - 2000 gallons

NOTE: ALL RIGHTS RESERVED. THIS DRAWING MUST NOT BE REPRODUCED IN ANY FORM WITHOUT THE WRITTEN PERMISSION OF HIGHLAND TANKS. HIGHLAND TANKS SHALL BE RESPONSIBLE ONLY FOR ITEMS INDICATED ON THIS FABRICATION DRAWING UNLESS OTHERWISE NOTED. CUSTOMER IS RESPONSIBLE FOR VERIFYING CORRECTNESS OF SIZE AND LOCATION OF FITTINGS, ACCESSORIES, AND COATINGS SHOWN ON THIS DRAWING. TOUCH UP OF FINISHED PAINT IS REQUIRED BY INSTALLATION CONTRACTOR. TOUCH UP PAINT SHIPPED WITH TANK.

NOTES

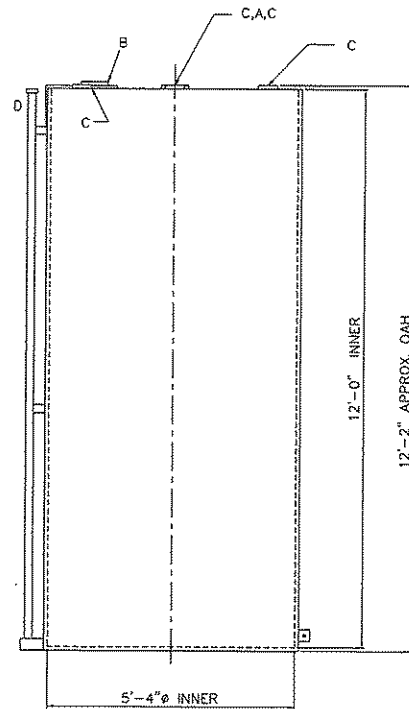
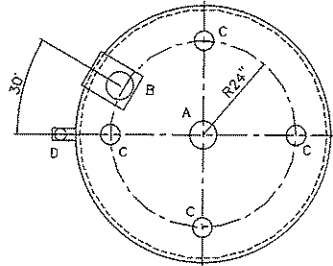
1. SEE PLAN VIEW FOR TRUE ORIENTATION AND LOCATION OF FITTING
2. LIFTING LUGS FOR UNLOADING UNIT & STANDING UNIT UPRIGHT TO BE PLACED AS NEEDED BY FABRICATION SHOP
3. A 3x3x1/8" STEEL GROUNDING LUG WITH A 3/8" Ø HOLE IN CENTER TO BE PLACED ON SHELL AT BOTTOM OF TANK IN LINE WITH LIFTING LUGS

DESIGN DATA

CAPACITY - 2,000 GALLONS
TYPE - VERTICAL DOUBLE WALL
NO. REQ. - -
OPERATING PRESSURE - ATMOSPHERIC
SPECIFIC GRAVITY = 1.0
TANK MATERIAL - MILD CARBON STEEL
THICKNESS - TOP - FLAT SINGLE WALL 10 GA
THICKNESS - INNER - SHELL: 7 GA BOTTOM: 1/4"
THICKNESS - OUTER - SHELL: 7 GA BOTTOM: 1/4"
CONSTRUCTION - LAP WELD OUTSIDE ONLY - INNER & OUTER
TOP & BOTTOM HEADS ARE FLAT FLANGED
TANK TEST - INNER: 2 PSIG, OUTER: - 2 PSIG & FULL VACUUM
INT. FINISH - NONE
EXT. FINISH - SHOP PRIMER
LABEL - UL 142

LEGEND

A	6" HALF COUP. (PRIMARY EMERGENCY VENT)
B	6" HALF COUPLING, SECONDARY EMERGENCY VENT IN INTERSTICE EXTENSION BOX, MARK w/ SPECIAL WARNING LABEL
C	4" HALF COUPLING
D	2" INTERSTITIAL MONITOR PIPE
E	-
F	-



		<h1>Highland Tank®</h1>	
CUSTOMER:			
PROJECT:			
QUOTE NO:	DATE:	DRW'D BY:	REV. NO:
1/2"-1'-0"			02000AVDW64

NOTE: ALL RIGHTS RESERVED. THIS DRAWING MUST NOT BE REPRODUCED IN ANY FORM WITHOUT THE WRITTEN PERMISSION OF HIGHLAND TANKS. TRENCH AND TANK SHALL BE RESPONSIBLE ONLY FOR ITEMS INDICATED ON THIS FABRICATION DRAWING UNLESS OTHERWISE NOTED. CUSTOMER IS RESPONSIBLE FOR VERIFYING CORRECTNESS OF SIZE AND LOCATION OF FITTINGS, ACCESSORIES, AND COATINGS SHOWN ON THIS DRAWING.

TOUCH UP FINISHED SURF'S REQUIRED BY INSTALLATION. CONTRACTOR TOUCH UP PAINT SHIPPED WITH TANK.

NOTES

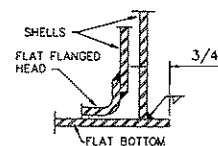
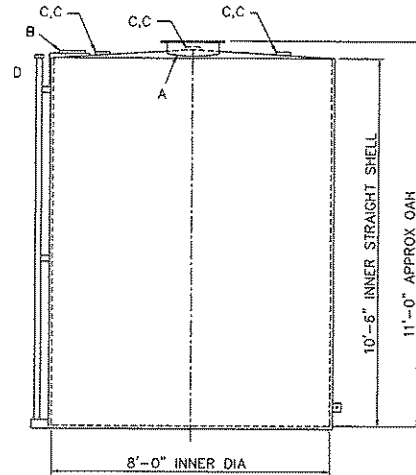
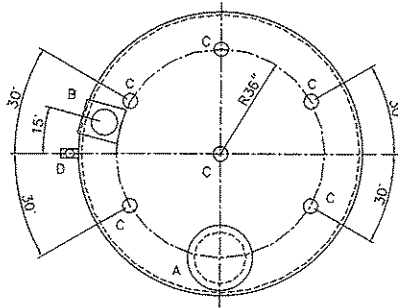
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2. LIFTING LUGS FOR UNLOADING UNIT & STANDING UNIT UPRIGHT TO BE PLACED AS NEEDED BY FABRICATION SHOP
3. A 3x3x1/4" STEEL GROUNDING LUG WITH A 3/8" HOLE IN CENTER TO BE PLACED ON SHELL AT BOTTOM OF TANK IN LINE WITH LIFTING LUGS

DESIGN DATA


CAPACITY - 4,000 GALLONS
 TYPE - VERTICAL DOUBLE WALL
 NO. REQ. - -
 OPERATING PRESSURE - ATMOSPHERIC
 SPECIFIC GRAVITY = 1.0
 TANK MATERIAL - MILD CARBON STEEL
 THICKNESS- TOP-7 GA SINGLE WALL SHALLOW SLOPE
 THICKNESS- INNER- SHELL: 7 GA BOTTOM: 1/4"
 THICKNESS- OUTER- SHELL: 7 GA BOTTOM: 1/4"
 CONSTRUCTION - LAP WELD OUTSIDE ONLY- INNER & OUTER
 TANK TEST - INNER: 2 PSIG, OUTER:- 2 PSIG & FULL VACUUM
 INT. FINISH - NONE
 EXT. FINISH - SHOP PRIMER
 LABEL - UL 142

LEGEND

A	18" LOOSE BOLT MANWAY
B	6" HALF COUPLING IN INTERSTICE EXTENSION BOX - MARK WITH LABEL- SECONDARY EMERGENCY VENT USE ONLY
C	4" HALF COUPLING
D	2" INTERSTITIAL MONITOR PIPE
E	-
F	-



BOTTOM JOINT DETAIL

 Highland Tank®	
4,000 GAL 96° DW VERTICAL	
CUSTOMER:	
PROJECT:	
QUOTE NO. SCALE: 3/8"=1'-0"	DATE:
DWG. BY:	DWG. NO.: 04000AVDW96

NOTE: ALL RIGHTS RESERVED. THIS DRAWING MUST NOT BE REPRODUCED IN ANY FORM WITHOUT THE WRITTEN PERMISSION OF HIGHLAND TANKS. HIGHLAND TANKS SHALL BE RESPONSIBLE ONLY FOR ITEMS INDICATED ON THIS FABRICATION DRAWING UNLESS OTHERWISE NOTED. CUSTOMER IS RESPONSIBLE FOR VERIFYING CORRECTNESS OF SIZE AND LOCATION OF FITTINGS, ACCESSORIES, AND DIMENSIONS SHOWN ON THIS DRAWING.

TOUCH UP OF FINISHED PAINT IS REQUIRED BY INSTALLATION CONTRACTOR. TOUCH UP PAINT SHIPPED WITH TANK.

NOTES

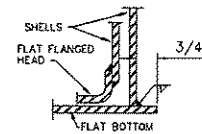
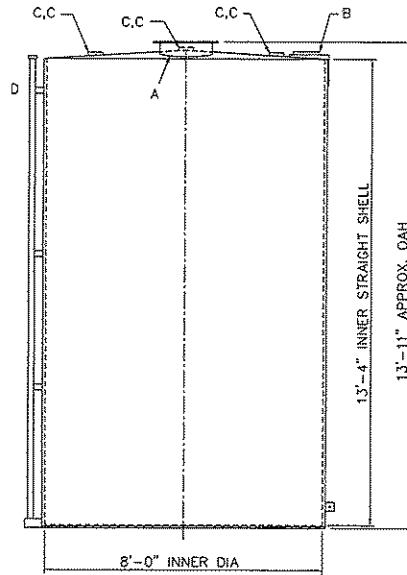
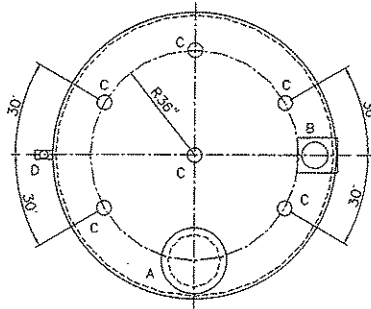
1. SEE PLAN VIEW FOR TRUE ORIENTATION AND LOCATION OF FITTING
2. LIFTING LUGS FOR UNLOADING UNIT & STANDING UNIT UPRIGHT TO BE PLACED AS NEEDED BY FABRICATION SHOP
3. A 3x3x1/4" STEEL GROUNDING LUG WITH A 3/8" HOLE IN CENTER TO BE PLACED ON SHELL AT BOTTOM OF TANK IN LINE WITH LIFTING LUGS

DESIGN DATA

CAPACITY - 5,000 GALLONS
TYPE - VERTICAL DOUBLE WALL
NO. REQ. - -
OPERATING PRESSURE - ATMOSPHERIC
SPECIFIC GRAVITY - 1.0
TANK MATERIAL - MILD CARBON STEEL
THICKNESS-TOP-7 GA SINGLE WALL SHALLOW SLOPE
THICKNESS-INNER-SHELL: 7 GA BOTTOM: 1/4"
THICKNESS-OUTER-SHELL: 7 GA BOTTOM: 1/4"
CONSTRUCTION - LAP WELD OUTSIDE ONLY- INNER & OUTER
TANK TEST - INNER: 2 PSIG, OUTER:- 2 PSIG & FULL VACUUM
INT. FINISH - NONE
EXT. FINISH - SHOP PRIMER
LABEL - UL 142

LEGEND

A	18" LOOSE BOLT MANWAY
B	8" HALF COUPLING IN INTERSTICE EXTENSION BOX - MARK WITH LABEL- SECONDARY EMERGENCY VENT USE ONLY
C	4" HALF COUPLING
D	2" INTERSTITIAL MONITOR PIPE
E	-
F	-



BOTTOM JOINT DETAIL

<p>Highland Tank®</p>	
<p>5,000 GAL 96° DW VERTICAL</p>	
<p>CUSTOMER:</p>	
<p>PROJECT:</p>	
<p>QUOTE NO:</p>	<p>DR'G BY:</p>
<p>SCALE: 3/8"=1'-0"</p>	<p>DATE: 05000AVDW96</p>

The storage tanks with their containment will be located inside existing fenced Drum Yard Storage Area in place of currently existing catalytic incinerator (RTO). The catalytic incinerator was taken out of service in March 2012 with the approval of Michigan Department of Environmental Quality, Air Quality Division and will be removed from the property before the projects starts.

The tanks and the pumps will be seated on concrete housekeeping pads, adjacent minimum 3 feet from each other and 10 feet from the building. The tanks will be surrounded by liquid tight, non-combustible concrete containment cell to provide for additional to double wall spill protection. The size of the containment will be 30 feet by 40 feet and 3feet and 6 inches in height. Total capacity of the secondary containment will be 26390 gallons. The Drum Yard Storage Area is surrounded on the western and northern side of the facility by 4" curb and protected by an nine foot chain-link security fence, a 10 foot concrete wall on the southern side, and 2 hour fireproof building as the eastern wall. There are vehicle and personnel gates on the western side of the Drum Yard. The Drum Storage Yard is also the only exterior containment area that collects storm water as well as any discharges from the portable containers. The storm water secondary containment consists of an underground holding tank and all storm water from the drum yard drains to it. The storm water vault is inspected prior to removal or release. The notification that the vault is full is initiated by the mixing department by notifying the maintenance department. The maintenance department goes out to the drum yard and grabs a representative sample from the underground vault and takes the sample to Quality Control (QC). QC uses the TAT Test Method 500: Storm Water testing procedure and evaluates for color, sediment, oil, and unusual odor. If the storm water passes this means that the sample has no separation, no excessive sediment, odor, or foaming for longer than 10 seconds. QC then lets Maintenance know that the accumulated storm water in the underground holding tank can be released via a wrench valve to the storm water drainage system and Outfall 001 to the Fire Pond. If the sample fails, QC informs the maintenance and EHS departments that the test failed and the storm water is removed via pumping to tanker or container and disposed in accordance with local, state and federal regulations. The testing records are maintained by QC. The secondary containment around AST will have manually operated sub pump. Since the drain will not be directly connected to storm water drain, NPDES permit is not required. However, Transtar Autobody Technologies will update existing permit to include the change. The same procedure will be used to manage rain water as for the Drum Yard Storage Area.

The Drum Yard will also serve as secondary containment area during truck unloading. The tanker will back up into the yard through open vehicle gate. The width of the driveway leading to the yard is 20 feet and the width of the Heisserman Drive leading to it is 25 feet. From the past experience and based on tank truck turning characteristics the tanker truck can safely navigate their way to the proposed storage tanks.

Unloading of the tanker will be according to the Tank Truck Unloading Procedure (see attached). Each tank will be equipped with stainless fill tubes. The tanks and manifold will be protected from vehicle damage by installation of bollards. Each bollard will be made of 6" diameter steel pipe, filled with concrete. The bollards will be spaced no more than 4 feet from each other.

Each tank will be equipped with air diaphragm product pump. Each pump will be equipped with relief valve and positive shut off on both sides. Carbon steel, liquid tight, protected against corrosion piping will be installed and will connect tanks with the four filling stations located inside the plant. The piping system will be tested before placing in service. Any pipe support will

be constructed of non combustible, galvanized material. New piping will be prime painted and finished with identifications labels. Tanks and piping will be grounded and bounded.

Dispensing of each product inside the building will be controlled by turning on the respective air operated pump and opening a normally closed solenoid valve. The control and metering of the system will be provided by a programmable logic controller and HMI operator interface touch screen. Each of the four (4) dispensing stations will have independent HMI operator stations which allow the operator to select the product and quantity for dispensing. The HMI will have start/stop/pause functions to control the delivery of product. The solenoid valves are explosion-proof failsafe normally closed valves. In the event of a power failure or initiation of an emergency shutdown pushbutton action, the pumps will stop by closing air solenoids removing air pressure from the pumps and the valves will be de-energized and close. An alarm will be reported at the main control panel and the system will require a manual reset at the main panel in order to re-start. Operating procedure will be written and operators will be trained on operation and spill prevention upon completion of installation.

MATERIALS THAT WILL BE STORED

TANK 1 – ACETONE

CAS 67-64-1
NFPA 130
Flash Point 0 °F
Boiling Point 133°F
LEL 2.6%, UEL 12.8%
Storage Volume – 4000 gallon

TANK 2 – TOLUENE

CAS 108-88-3
NFPA 230
Flash Point 40 °F
Boiling Point 231.1°F
LEL 1.1%, UEL 7.1%
Storage Volume – 4000 gallon

TANK 3 – XYLENE

HYLENE, CAS 1330-20-7
CONCENTRATION $\geq 70\%$ - $< 80\%$
ETHYL BENZENE, CAS 100-41-4
CONCENTRATION $> 20\%$ - $< 30\%$
NFPA 230
Flash Point 77 °F
Boiling Point 280 °F
LEL 1.0%, UEL 6.6%
Storage Volume – 2000 gallon

TANK 4 – METHYL ISOBUTY KETONE

CAS 108-10-1
NFPA 230
Flash Point 72.99 °F
Boiling Point 240 °F
LEL 8.0%, UEL 12.0%
Storage Volume – 2000 gallon

TANK 5 – n-BUTYL ACETATE

CAS 123-86-4
NFPA 230
Flash Point 81 °F
Boiling Point 259 °F
LEL 1.2%, UEL 7.5%
Storage Volume – 2000 gallons

TANK 6 – REDUCERS (MIXED SOLVENTS)

Three different Reducers (Slow, Medium or Fast), will be stored at different times, depending on need. The reducers are compatible with each other.
MIXTURE OF : ETHYL ACETATE (1% – 65%) CAS 141-78-6; n-BUTYL ACETATE (15%-60%) CAS 123-86-4; TOLUENE (15%-25%) CAS 108-88-3; PROPYLENE GLYCOL MONOMETHYL ETHER ACETATE (5%-20%) CAS 108-65-6.
NFPA 230
Flash Point 25 °F
Boiling Point 171 °F -295 °F
LEL 1.1%, UEL 11.5%
Storage Volume – 2000 gallons

Project will be completed by:

W.J. O'Neil Company

35457 Industrial

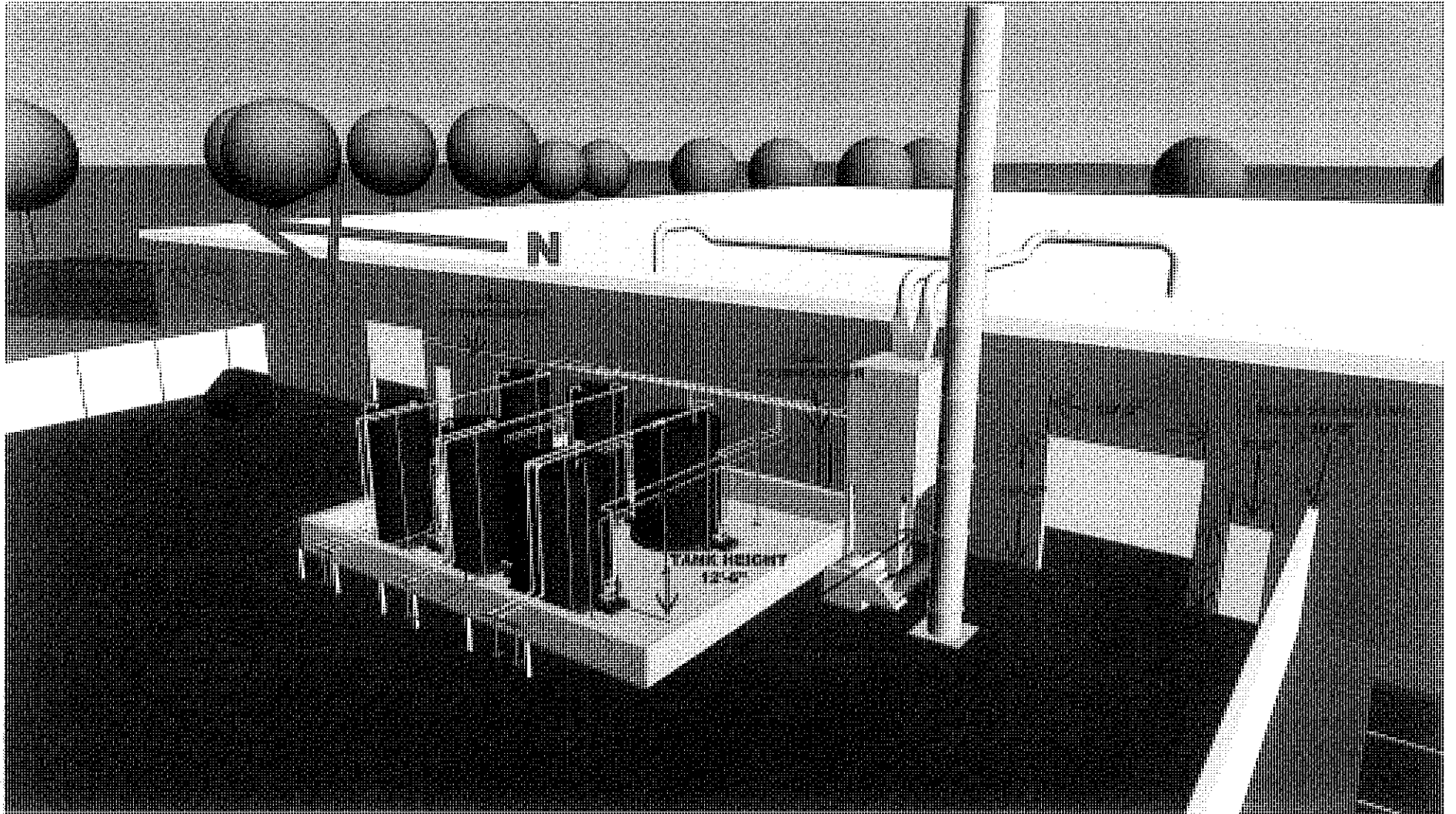
Livonia, MI 48150

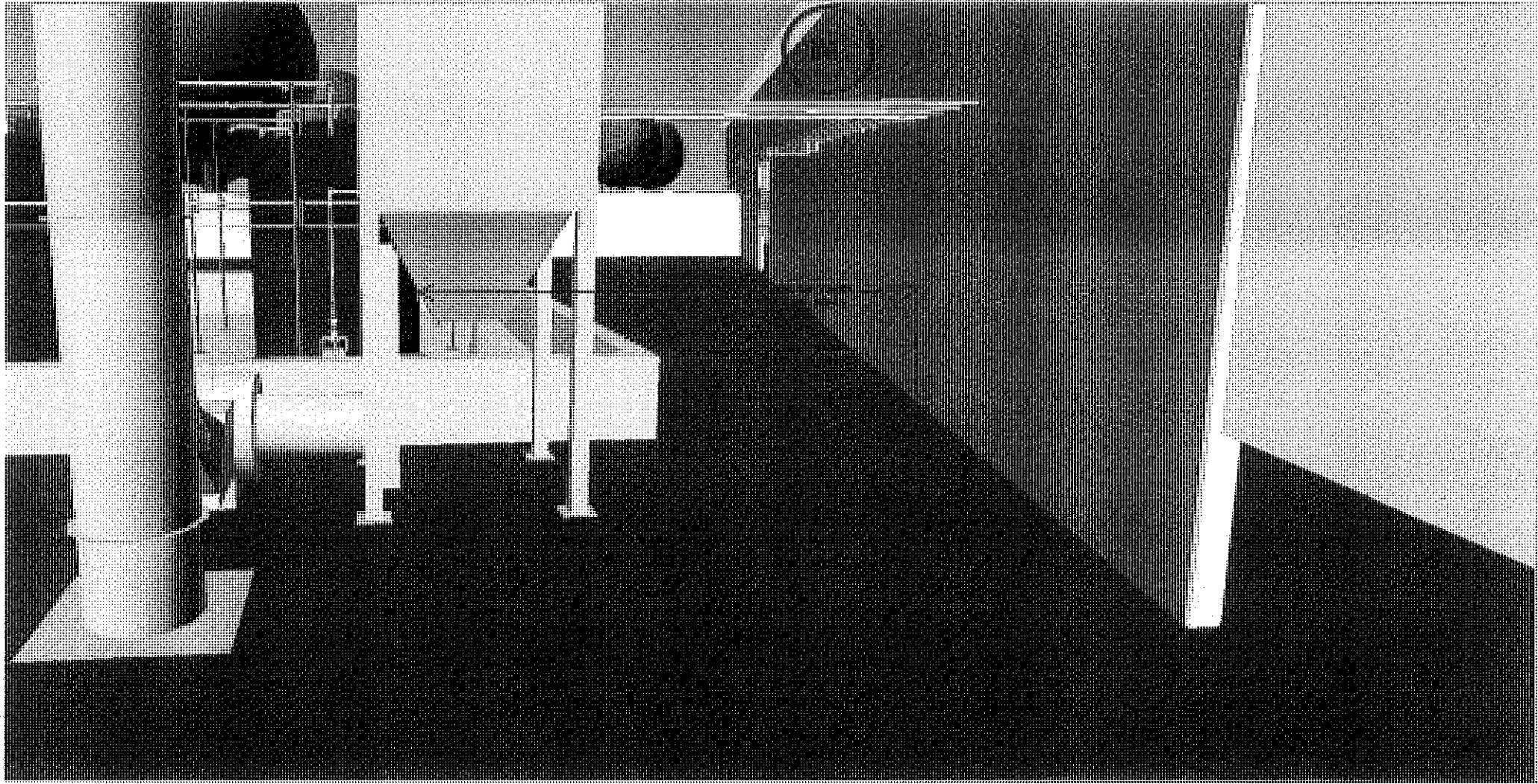
734.458.2300

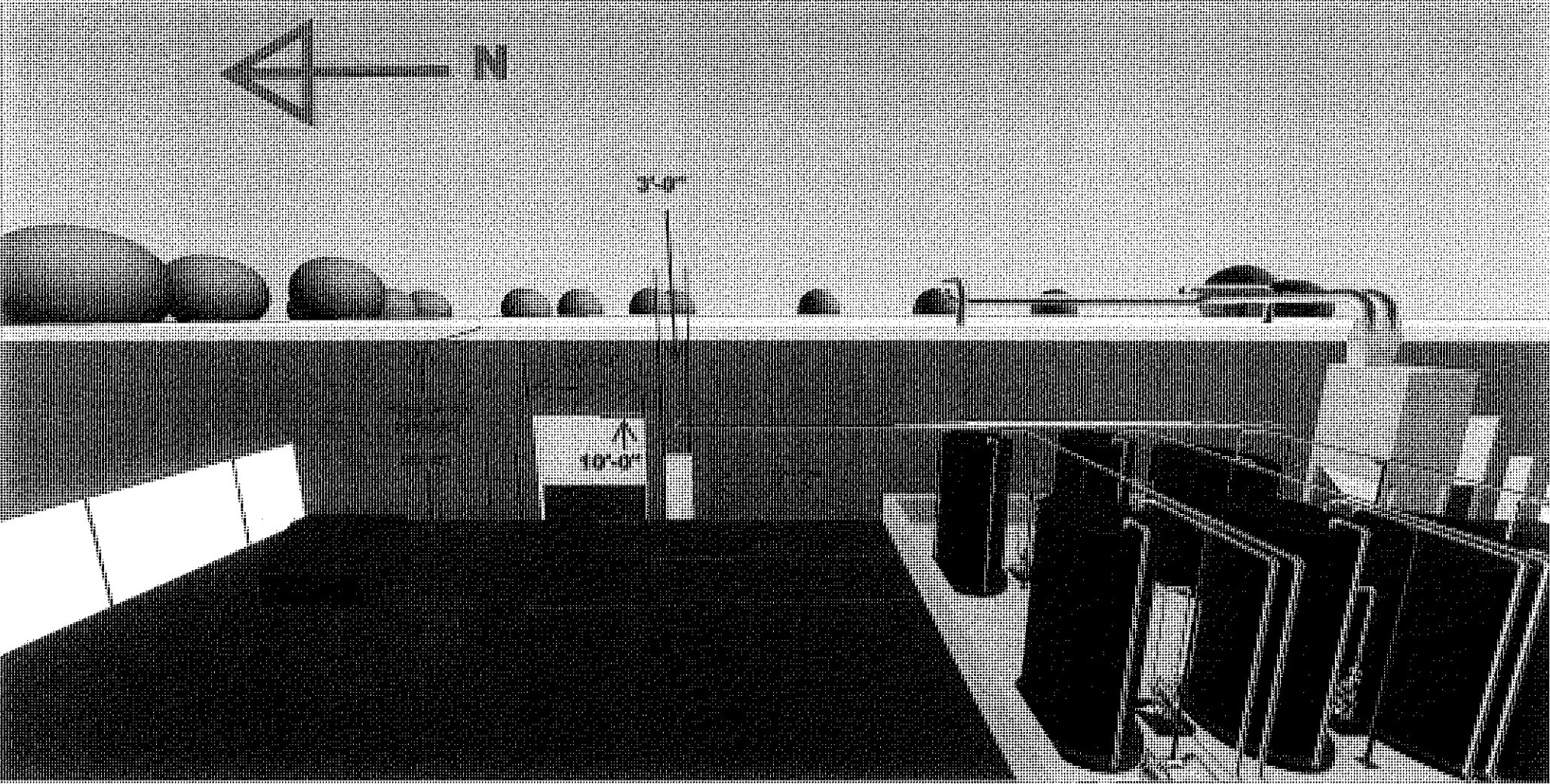
734.458.2305 (fax)

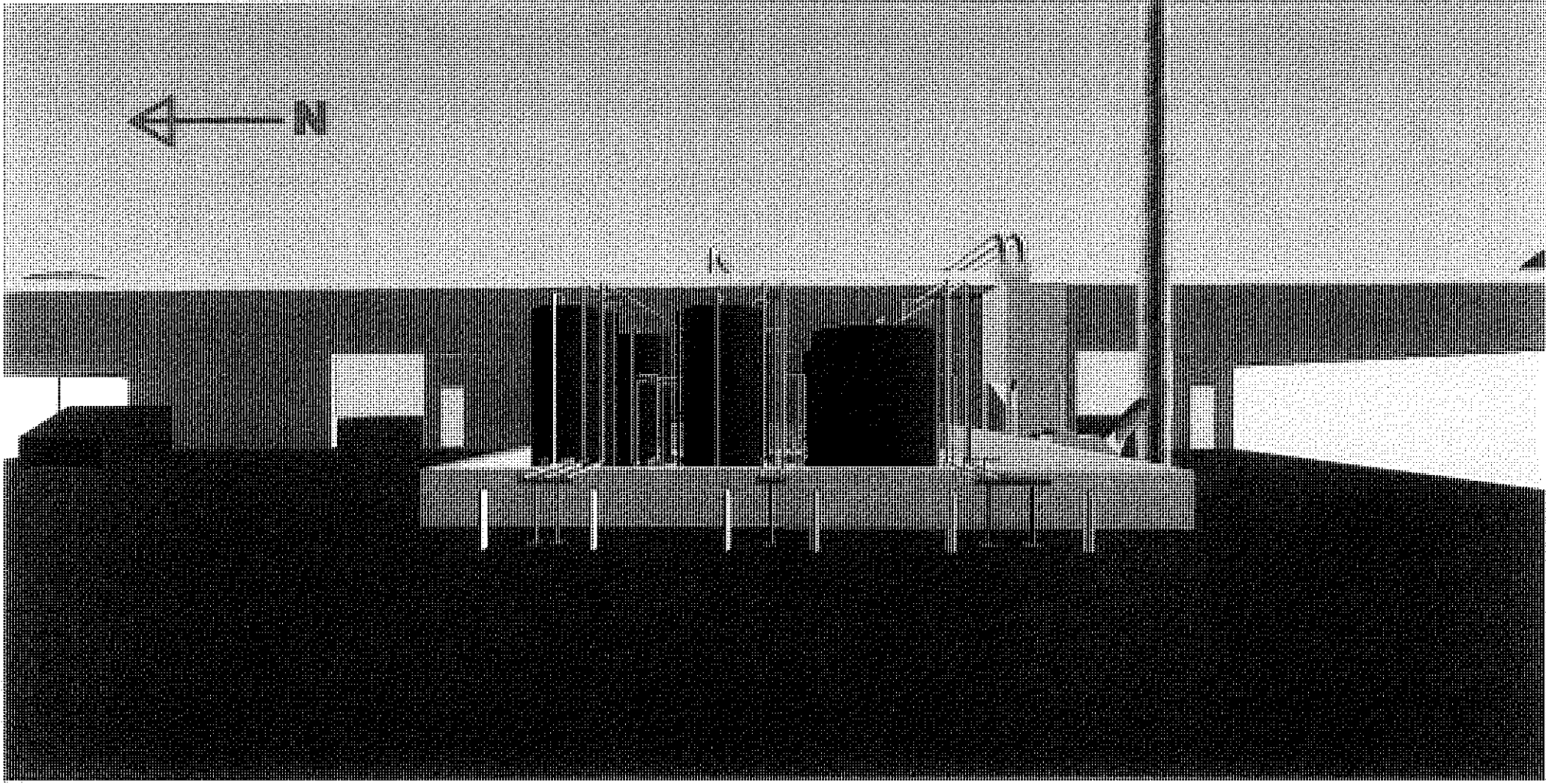
Contact: Jim Wszola

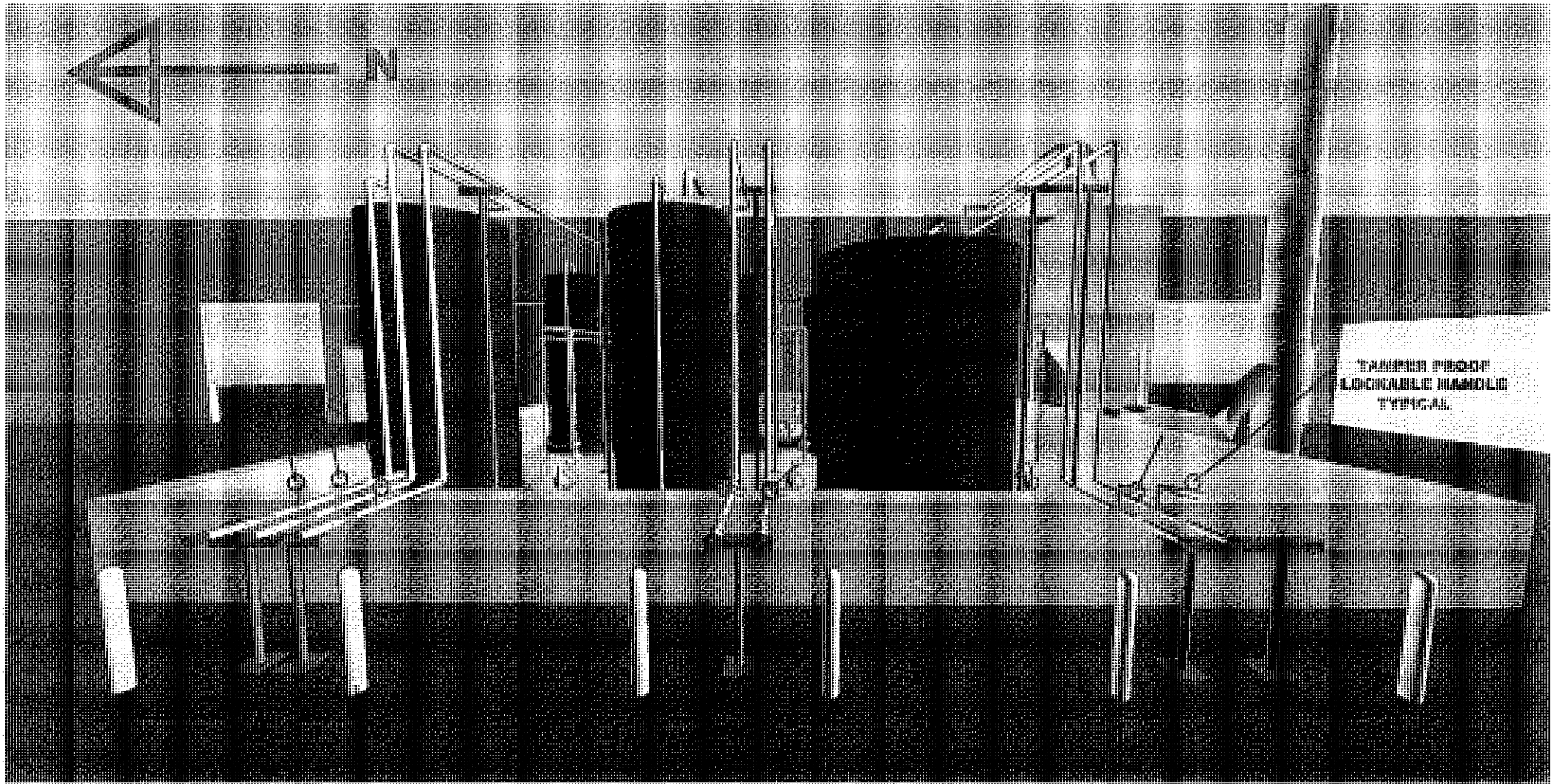
W.J. O'Neil Company will search mechanical approval from the city before the installation.

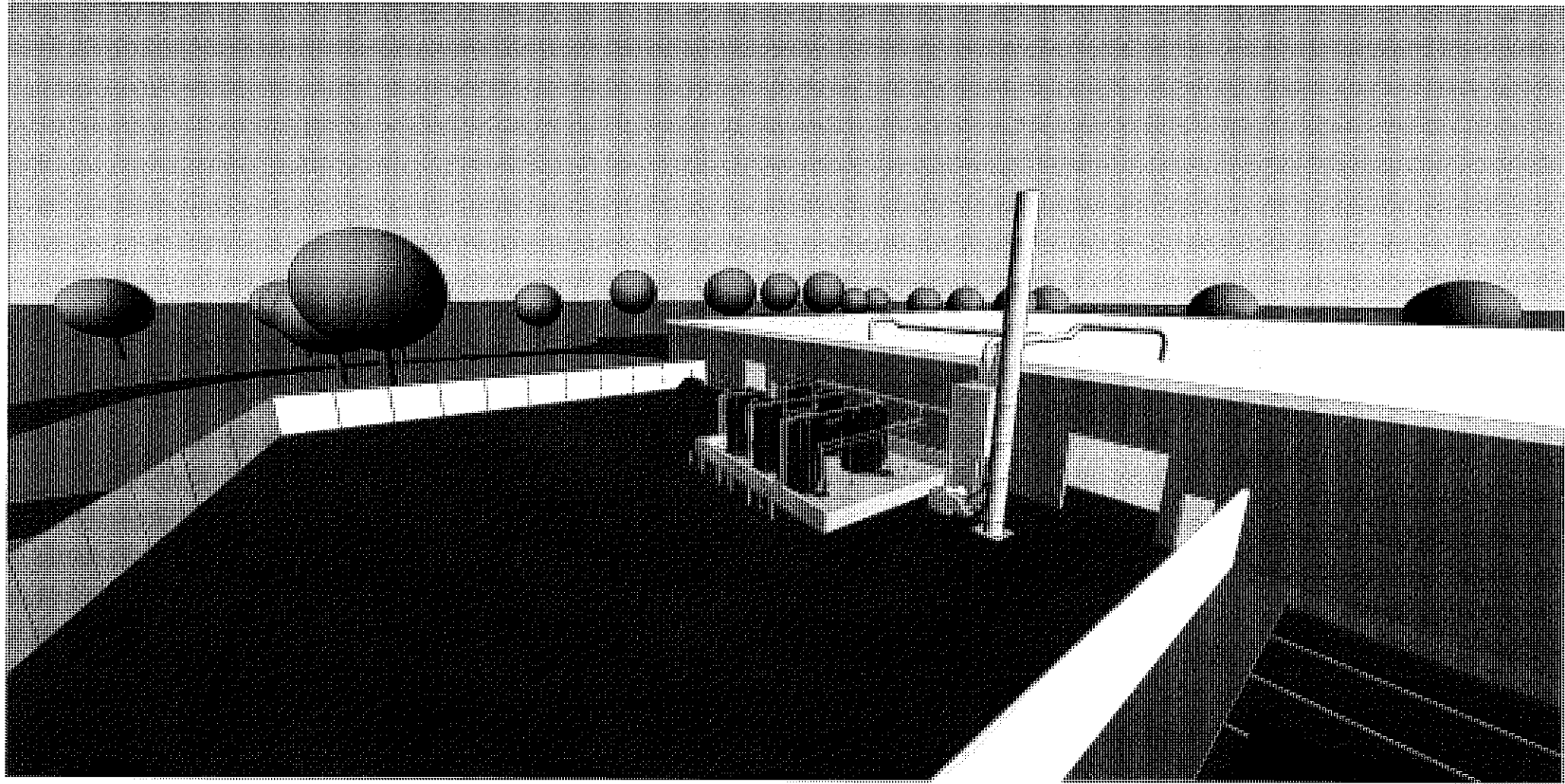




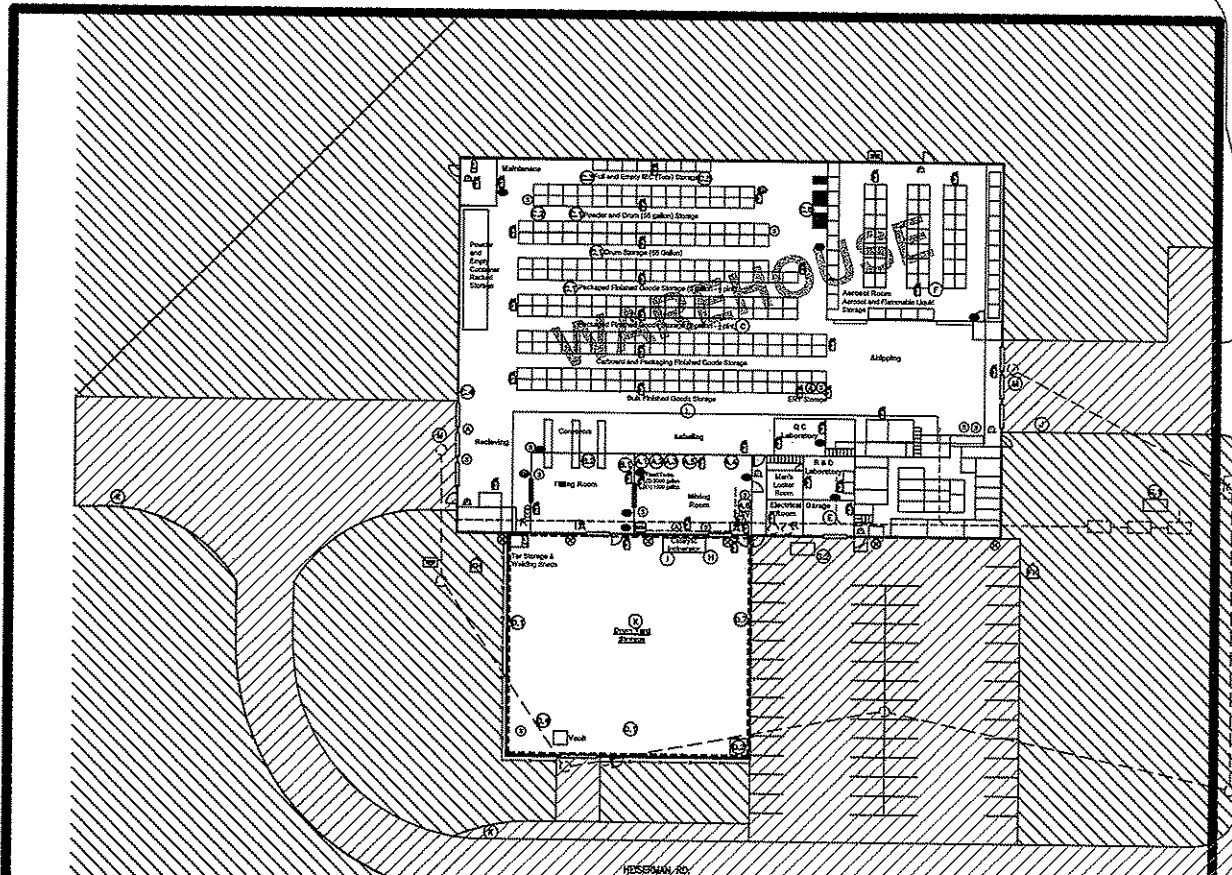








ELDER RD



- ① MIX ROOM
- A1 (1) 2,500-GAL. FLAMMABLE PRODUCT AST
- A2 (1) 2,200-GAL. FLAMMABLE PRODUCT AST
- A3 (1) 1,000-GAL. FLAMMABLE PRODUCT AST
- A4 (15) 550-GAL. FLAMMABLE PRODUCT MIX TANKS
- A5 55-GAL. DRUMS-VARIOUS MATERIALS (SEE TABLE 1)
- A6 (8) 55-GAL. HAZARDOUS WASTE DRUMS
- ② FILL ROOM
- B1 (4) 55-GAL. VARIOUS FLAMMABLE SOLVENT DRUMS
- B2 (1) 55-GAL. HAZARDOUS WASTE ACCUMULATION DRUM
- ③ WAREHOUSE
- C1 55-GAL. DRUMS-VARIOUS MATERIALS (SEE TABLE 1)
- C2 WOODS NON-SP. REGULATED SOLIDS (SEE TABLE 1)
- C3 EMPTY TOTES (SEE TABLE 1)
- C4 EMPTY MIX TANKS (SEE TABLE 1)
- C5 55-GAL.-550-GAL. DRUMS AND TOTES-VARIOUS MATERIALS
- C6 (2) 3,000-LB(500-GAL.) FORKLIFT BATTERIES

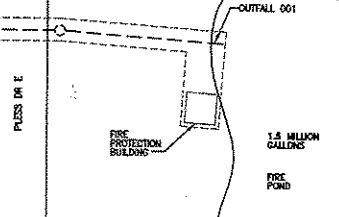
- ④ DRUM YARD STRUCTURAL CONTROLS: CONTAINMENT CURBS, PAVEMENT, GRASSES TO DRAIN TO 200-GAL. HOLDING TANK
- D.1 55-GAL. DRUMS-VARIOUS MATERIALS (SEE TABLE 1)
- D.2 (25) 55-GAL. HYDROCELLULOSE DRUMS
- D.3 (6) 330-GAL. EMPTY TOTES
- D.4 (1) 200-GAL. STORM WATER RUNOFF SPILL LIST
- ⑤ GARAGE STRUCTURAL CONTROLS: COVERED, SECONDARY CONTAINMENT
- (1) 55-GAL. ACETIC ACID DRUM
- ⑥ AEROSOL ROOM
- ⑦ TRANSFORMER (DTE OWNED/OPERATED) AEROSOL PRODUCT CONTAINER STORAGE
- ⑧ TRANSFORMER, COVERED, PAVED PAD
- C.1 (1) 200-GAL. TRANSFORMER, COVERED, PAVED PAD
- C.2 (1) 300-GAL. TRANSFORMER, COVERED, PAVED PAD
- ⑨ FORKLIFT TRACKING OF PAINTS/SOLVENTS STRUCTURAL CONTROLS: PAVEMENT, CONTAINMENT CURBS, DRAIN TO HOLDING TANK

- ⑩ CATALYTIC INCINERATOR PARTICULATE STRUCTURAL CONTROLS: PAVEMENT, CONTAINMENT CURBS, DRAIN TO HOLDING TANK
- ⑪ GENERAL TRASH TRANSFER AREA STRUCTURAL CONTROLS: PAVEMENT, GRASSING
- ⑫ SEMITRAILER STAGING STRUCTURAL CONTROLS: PAVEMENT
- ⑬ ROOF
- ⑭ SHIPPING AND RECEIVING DOCKS CONTAINER HANDLING STRUCTURAL CONTROLS: PAVEMENT, GRASSING, CONTAINMENT CURBS

LEGEND

DOOR	FIRE HYDRANT	EYE WASH/SHOWER STATION
GARAGE TYPE DOOR	FIRE EXTINGUISHER	HAZARDOUS WASTE STORAGE
SPILL KIT	FULL DOWN FIRE ALARM	FLAMMABLE COMPRESSED GASES
ACCIDENT KIT	R. ROSE	EYE WASH
SPILL	NON-PORTABLE WATER	ROOF
	NON-PORTABLE WATER	MILKING MACHINE
	NON-PORTABLE WATER	VEGETATION/PERVIOUS
	NON-PORTABLE WATER	RAILS

--- DRAINAGE CITY WATER
 --- HIGH CONCENTRATION HOLDING WATER
 --- CHANNELED DRAINAGE
 --- TRANSFER EASEMENT
 --- PROPERTY BOUNDARY
 --- EFFLUENT SYSTEM DRAINS
 --- STORM WATER DRAINS
 --- DRAIN YARD DRAINAGE AREA
 --- CUTFALL 001 ON DRAINAGE AREA



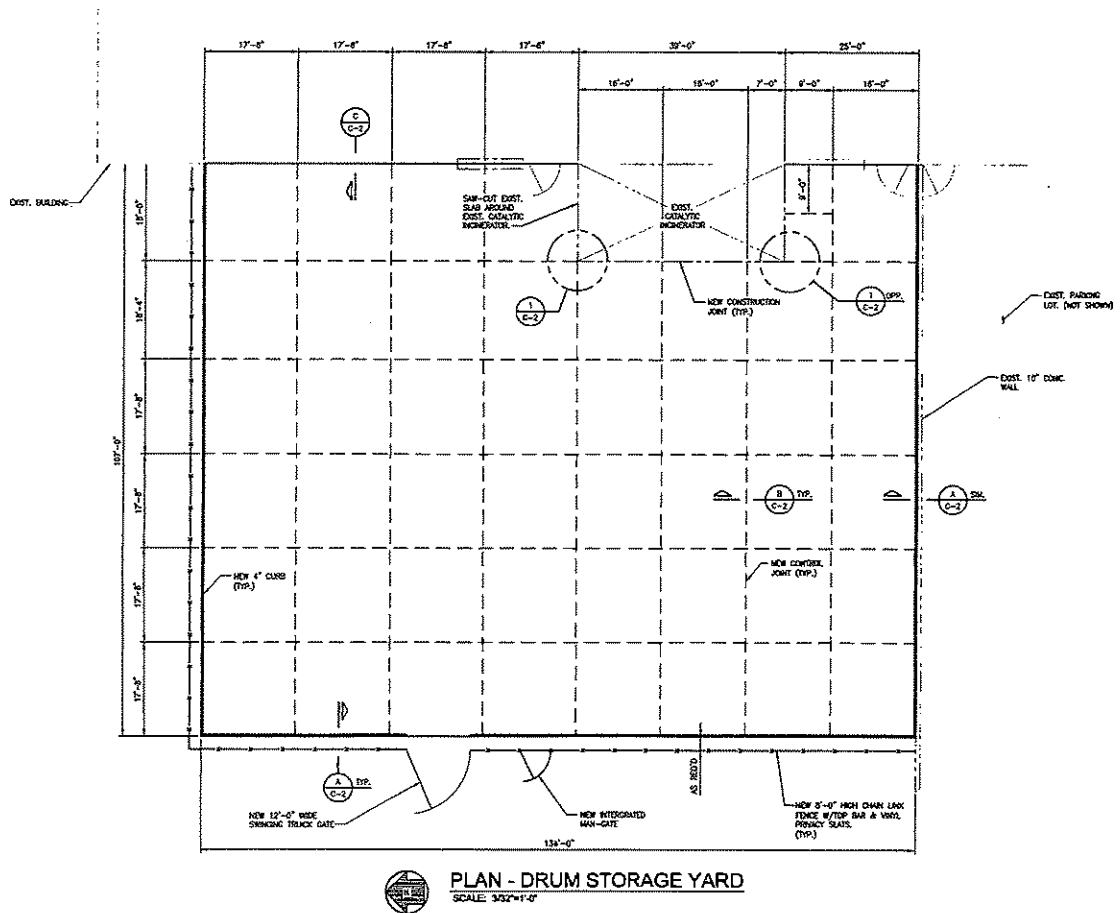
NO.	DESCRIPTION	BY	DATE

TETRA TECH

DRAWN: _____ CHECKED: _____
 SCALE: 1" = 500' SEE PLAN FOR ANY PV
 ANY COORDINATIONS
 TETRA TECH TECHNOLOGIES, INC.
FIGURE 2 INTEGRATED SPILL PLAN SITE PLAN

NO.	REVISION	DATE

AN:\2008\08209\08209 - Transstar - AutoBody\A-C-1.dwg PLOT DATE: Jun 19 2008 9:48am



PLAN - DRUM STORAGE YARD
SCALE: 3/32"=1'-0"



Sidcock Group, Inc.
Engineers, Architects, Consultants
Main (West) Offices
43105 Main Street, Suite 2310
Ann Arbor, Michigan 48107
Phone: (734) 769-8800
Fax: (734) 769-1439
West Michigan Office
204 Terrace Street, Suite 200
Muskegon, Michigan 49440
Phone: (231) 722-8800
Fax: (231) 722-8800
www.sidcockgroup.com

Key Plan: NO SCALE

Client:
DeMaria Building Company

Project:
TRANSTAR AUTOBODY TECHNOLOGIES, INC.

DRUM STORAGE YARD REPLACEMENT

Sheet:



Date: 6-6-08 Issued For: BUILDING PERMIT
Checked: M. NEWBORN
Approved: CONSTRUCTION

Drawn: C. PRICE
Checked: M. NEWBORN
Approved:

Sheet Title:
PLAN - STORAGE YARD

Project Number: **08209**

Sheet Number: **C-1**

Dispensing of each product inside the building will be controlled by turning on the respective air operated pump and opening a normally closed solenoid valve. The control and metering of the system will be provided by a programmable logic controller and HMI operator interface touch screen. Each of the four (4) dispensing stations will have independent HMI operator stations which allow the operator to select the product and quantity for dispensing. The HMI will have start/stop/pause functions to control the delivery of product. The solenoid valves are explosion-proof failsafe normally closed valves. In the event of a power failure or initiation of an emergency shutdown pushbutton action, the pumps will stop by closing air solenoids removing air pressure from the pumps and the valves will be de-energized and close. An alarm will be reported at the main control panel and the system will require a manual reset at the main panel in order to re-start. Operating procedure will be written and operators will be trained on operation and spill prevention upon completion of installation.

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NFPA 130
Flash Point 0 °F
Boiling Point 133°F
LEL 2.6%, UEL 12.8%
Storage Volume – 4000 gallon

TANK 2 – TOLUENE

CAS 108-88-3
NFPA 230
Flash Point 40 °F
Boiling Point 231.1°F
LEL 1.1%, UEL 7.1%
Storage Volume – 4000 gallon

TANK 3 – XYLENE

XYLENE, CAS 1330-20-7
CONCENTRATION $\geq 70\%$ - $< 80\%$
ETHYL BENZENE, CAS 100-41-4
CONCENTRATION $> 20\%$ - $< 30\%$
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Flash Point 77 °F
Boiling Point 280 °F
LEL 1.0%, UEL 6.6%
Storage Volume – 2000 gallon

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CAS 108-10-1
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Flash Point 72.99 °F
Boiling Point 240 °F
LEL 8.0%, UEL 12.0%
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CAS 123-86-4
NFPA 230
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LEL 1.2%, UEL 7.5%
Storage Volume – 2000 gallons

TANK 6 – REDUCERS (MIXED SOLVENTS)

Three different Reducers (Slow, Medium or Fast), will be stored at different times, depending on need. The reducers are compatible with each other.

MIXTURE OF : ETHYL ACETATE (1% – 65%) CAS 141-78-6; n-BUTYL ACETATE (15%-60%) CAS 123-86-4; TOLUENE (15%-25%) CAS 108-88-3; PROPYLENE GLYCOL MONOMETHYL ETHER ACETATE (5%-20%) CAS 108-65-6.
NFPA 230
Flash Point 25 °F
Boiling Point 171 °F -295 °F
LEL 1.1%, UEL 11.5%
Storage Volume – 2000 gallons

Summary of the proposed control system for Tank Truck Unloading

NOTE:

- Before attempting to use the following procedure, operators should be thoroughly familiar with the potential hazards associated with the handling and storage of transferred materials.
- Unloading operation is attended at all times by delivery truck operator and/or plant personnel.

1. Position the trailer in a designated delivery area that includes secondary containment and secured by parking in gear, using the emergency brake, or placing blocks behind wheels.

2. Attach ground wire to tank truck.

3. Carefully check the storage tank into which the contents of the truck are to be unloaded to be certain that it contains the same chemical as chemical to be transferred.

4. Check the gauge on the storage tank to be sure that there is sufficient room to receive the entire contents of the tank truck and record it.

5. Check all "product identification" or "bulk" tags (attached to product inlet valves and tanks) to be certain that the product being unloaded is, in fact, stored in given tank.

6. Take off cam lock. Attach the unloading line. The line should be a clean, dry hose that can safely withstand unloading pressures that can safely withstand unloading pressures.

7. Make certain flexible hose is connected correctly.

8. Draw off a sample of the contents for analysis and deliver it to QC department for testing.

9. After approval of the material, QC personnel will provide delivery truck operator or plant personnel with the key to the temper lock, located on the manifold with the valves leading to the tank that the product will be transferred.

NOTE:

Key will have “product identification” or “bulk” tag and it can only open the valve with the same identification.

10. Return to the unloading station, and unlock the valve.

11. Open dome lid or vent. Open valves in line between trailer and storage tank. Start pump. Proceed with unloading.

CAUTION : During the unloading operation, delivery truck operator and/or the plant personnel maintain an unobstructed view, within 25 feet, of the transfer operation.

12. Check transfer lines for leaks.

13. Check storage tank liquid level gauge to insure liquid is being transferred.

14. When tank trailer is empty, close outlet valve, stop pump and close trailer manual valve. Close dome lid or trailer vent. Close valves in the transfer line.

15. Disconnect and walk all hoses into proper catch containers, ensuring no product is lost onto the ground. Collect the draining for proper waste disposal.

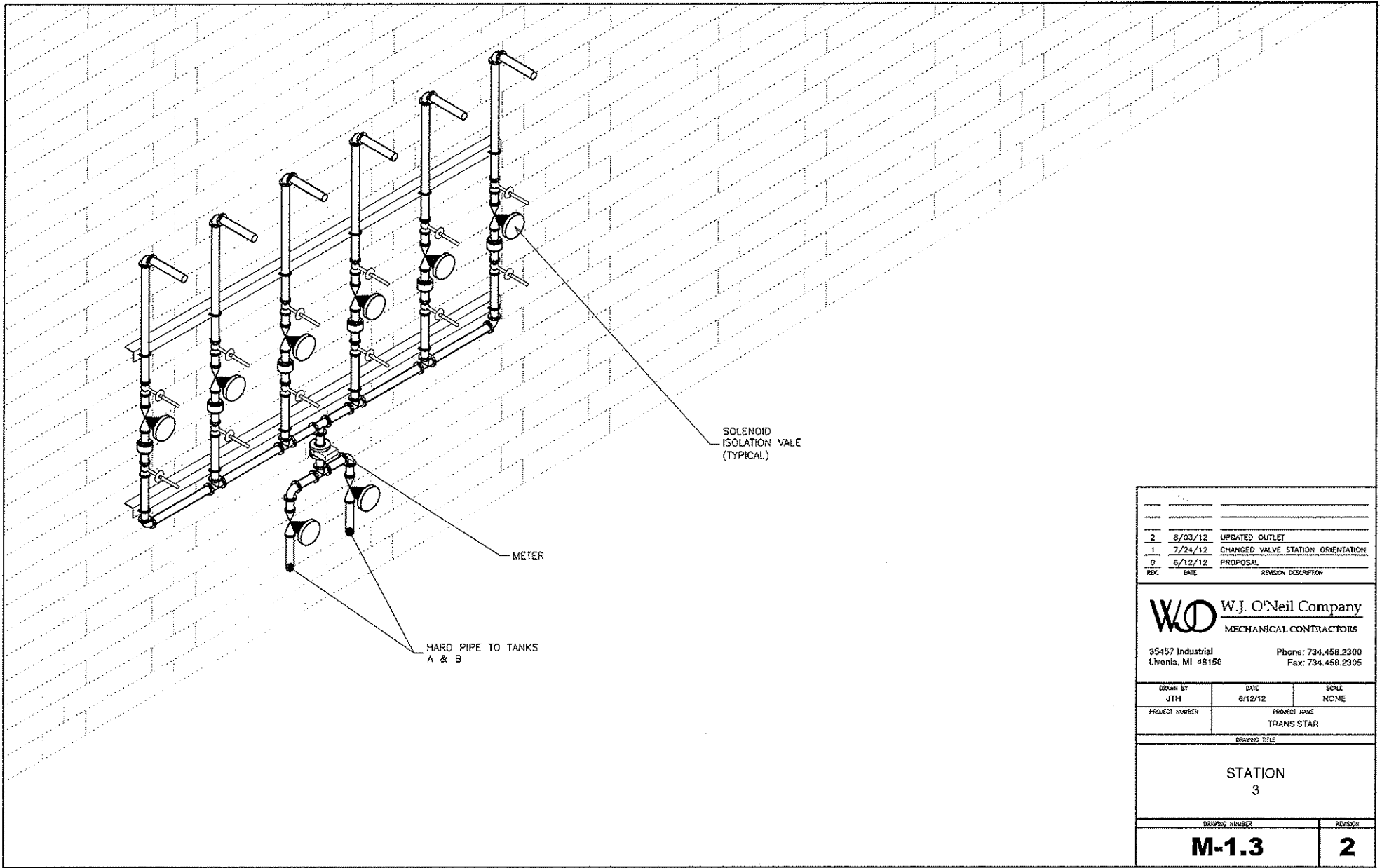
16. Secure all manholes, valves, closures in closed position and verify no leaks. Place cam lock on the valve.

17. Read Storage tank liquid level gauge and record reading.

Summary of the proposed control system for the solvent dispensing system at Transtar:

Multiple products (6) will be stored in outdoor storage tanks. Each product will be piped into the building and routed to multiple (4) tank mixing locations. Each product will be controlled by turning on the respective air operated pump and opening a normally closed solenoid valve. The control and metering of the system will be provided by a programmable logic controller and HMI operator interface touchscreen. Each of the four (4) dispensing stations will have independent HMI operator stations which allows the operator to select the product and quantity for dispensing. The HMI will have start/stop/pause functions to control the delivery of product.

The solenoid valves are explosion-proof failsafe normally closed valves. In the event of a power failure or initiation of an emergency shutdown pushbutton action, the pumps will stop by closing air solenoids removing air pressure from the pumps and the valves will be de-energized and close. An alarm will be reported at the main control panel and the system will require a manual reset at the main panel in order to re-start. Procedure for the operation will be written and training of the operators will take place after installation.



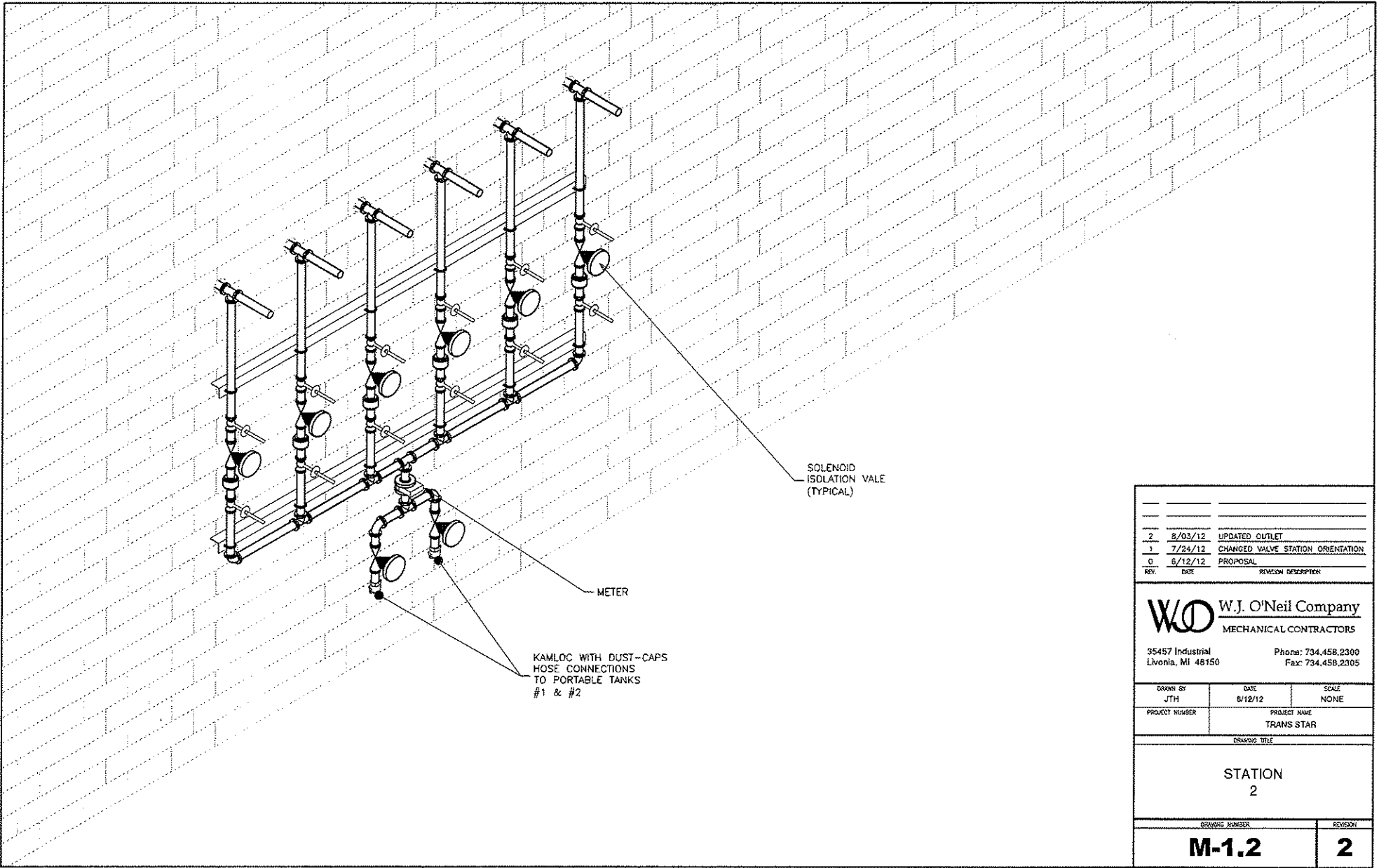
REV.	DATE	REVISION DESCRIPTION
2	8/03/12	UPDATED OUTLET
1	7/24/12	CHANGED VALVE STATION ORIENTATION
0	6/12/12	PROPOSAL

WJO W.J. O'Neil Company
 MECHANICAL CONTRACTORS
 35457 Industrial Livonia, MI 48150 Phone: 734.458.2300 Fax: 734.458.2305

DRAWN BY JTH	DATE 8/12/12	SCALE NONE
PROJECT NUMBER	PROJECT NAME TRANS STAR	
DRAWING TITLE		

STATION
3

DRAWING NUMBER M-1.3	REVISION 2
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2	8/03/12	UPDATED OUTLET
1	7/24/12	CHANGED VALVE STATION ORIENTATION
0	6/12/12	PROPOSAL
REV.	DATE	REVISION DESCRIPTION

WJO W.J. O'Neil Company
 MECHANICAL CONTRACTORS
 35457 Industrial Livonia, MI 48150 Phone: 734.458.2300 Fax: 734.458.2305

DRAWN BY JTH	DATE 8/12/12	SCALE NONE
PROJECT NUMBER	PROJECT NAME TRANS STAR	

STATION
2

DRAWING NUMBER M-1.2	REVISION 2
--------------------------------	----------------------

EULER RD.

PROPOSED BUILDING

PROPOSED FINISH FLOOR ELEVATION 99.00

EAST INDUSTRIAL DRIVE

CONCRETE PAVEMENT
TRUCK VELL
CONCRETE PAVEMENT

RAY MATERIAL STORAGE AREA
CONCRETE CONTAINER
RAY MATERIAL STORAGE TANKS
ENERGY RESERVOIR

PARADES
50 CONC
MATERIAL STORAGE AREA
CONCRETE CONTAINER
RAY MATERIAL STORAGE TANKS
ENERGY RESERVOIR

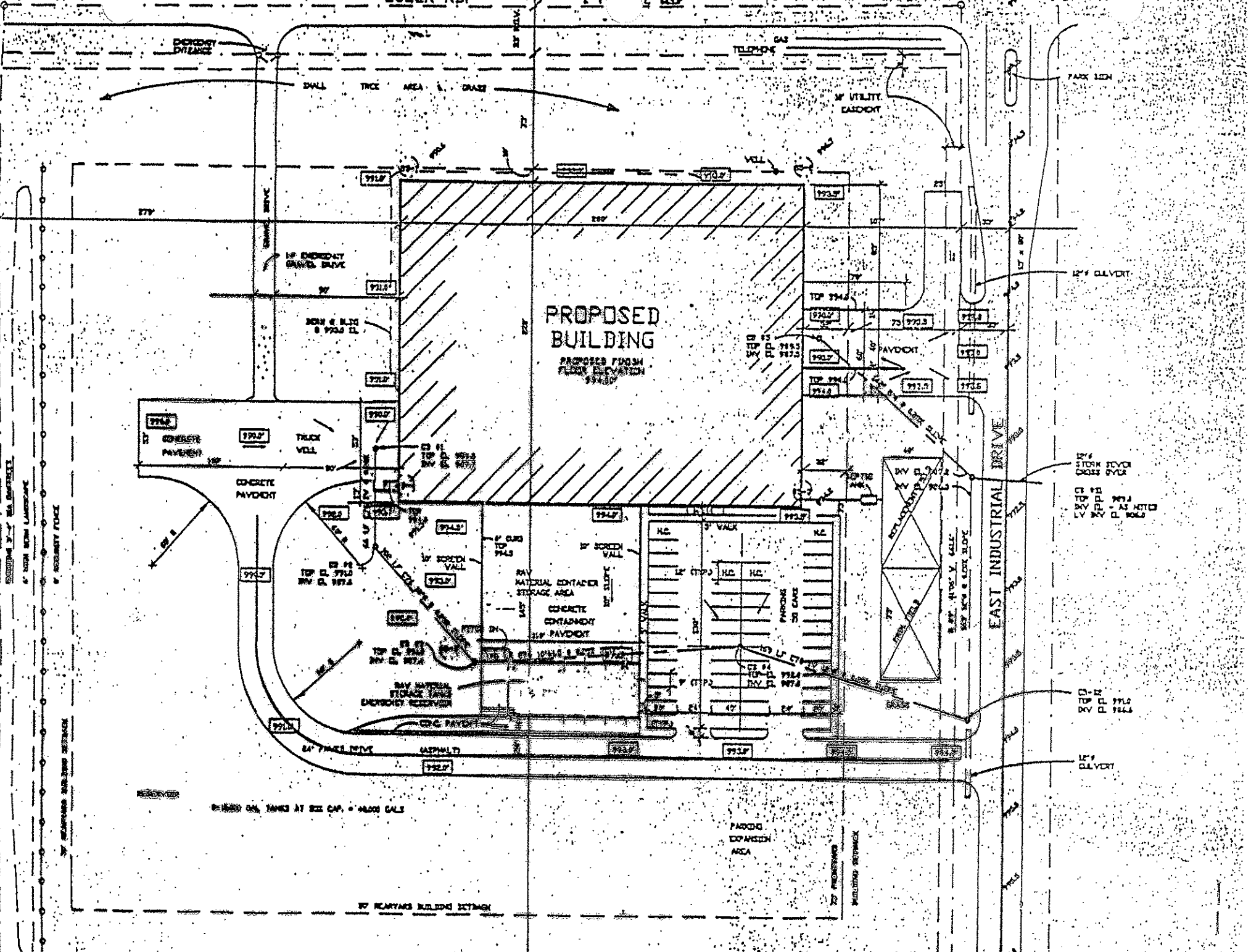
CONCRETE CONTAINER
RAY MATERIAL STORAGE TANKS
ENERGY RESERVOIR

RESERVOIR
10000 GALS. TANKS AT 200 CAP. = 10000 GALS

PARADES
EXPANDED
AREA

CONCRETE CONTAINER
RAY MATERIAL STORAGE TANKS
ENERGY RESERVOIR

CONCRETE CONTAINER
RAY MATERIAL STORAGE TANKS
ENERGY RESERVOIR



SECURITY FORCE
SECURITY FORCE
SECURITY FORCE

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SECURITY FORCE

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SECURITY FORCE

SECURITY FORCE

Guide Specification for Aboveground Vertical Double Wall UL-142 Steel Storage Tank

Each of the four (4) tanks will be 2,000 gallon aboveground vertical, double wall, steel storage tank 12'0" high with double bottom, 5'4" in diameter. Each of two (2) 4,000 gallon aboveground vertical, double wall, and steel storage tank will be 10'6" high with double bottom, 8'0" in diameter. Each tank will be fabricated from mild carbon steel with a flat-flanged bottom inner head, a flat bottom outer head and a flat top. Inner tank walls and bottom will be constructed with 7 gauge steel; tank top will be constructed with 7 gauge steel; outer tank walls from 10 gauge min. and outer bottom with 7 gauge steel. Double wall tank will be fitted with a monitoring tube the height of the tank and topped with 2" diameter threaded fitting for monitoring the interstitial space between the inner and outer walls.

Tank installer will be responsible for installing an interstitial monitoring system OR owner shall be responsible for checking the interstice on a weekly basis and assuring written record of such checks. Interstitial monitoring tube will be provided with a warning label identifying it as a monitoring tube only.

All items included in tank unit will be commercial grit blasted (SSPC-6 standards), then promptly coated with an epoxy grey primer (10 mils min.) and finish coated with a white urethane (10 mils min.).

The tank unit will be manufactured in conformance with Underwriters Laboratories' UL-142 specifications and so labeled.

Tank top will be supplied with (4) 4" threaded fittings every 90° on a 26" radius and (1) 6" threaded fitting at the top center point for emergency venting purposes. Additionally, (1) 6" interstitial emergency vent fitting assembly will be provided at 315°. Thread protectors will be inserted in all threaded openings prior to shipment.

Tank will be air tested at the factory in accordance with UL-142 standards, and will be retested at the jobsite by the installer prior to installation in accordance with applicable NFPA and BOCA standards. Outer tank will not be directly subjected to air pressure except via valves releasing test pressure from the inner tank. See manufacturer's test instructions.

The following will be supplied with the tank:

(2) 6" Emergency Vents: for inner and outer tanks.
Level Sensing System(s)

NOTE: ALL RIGHTS RESERVED. THIS DRAWING MUST NOT BE REPRODUCED IN ANY FORM WITHOUT THE WRITTEN PERMISSION OF HIGHLAND TANKS. HIGHLAND TANKS SHALL BE RESPONSIBLE ONLY FOR ITEMS INDICATED ON THIS FABRICATION DRAWING UNLESS OTHERWISE NOTED. CUSTOMER IS RESPONSIBLE FOR VERIFYING CORRECTNESS OF SIZE AND LOCATION OF FITTINGS, ACCESSORIES, AND LOCATIONS SHOWN ON THIS DRAWING.

TOUCH UP OF FINISHED PAINT IS PROVIDED BY INSTALLATION CONTRACTOR. TOUCH UP PAINT SHIPPED WITH TANK.

NOTES

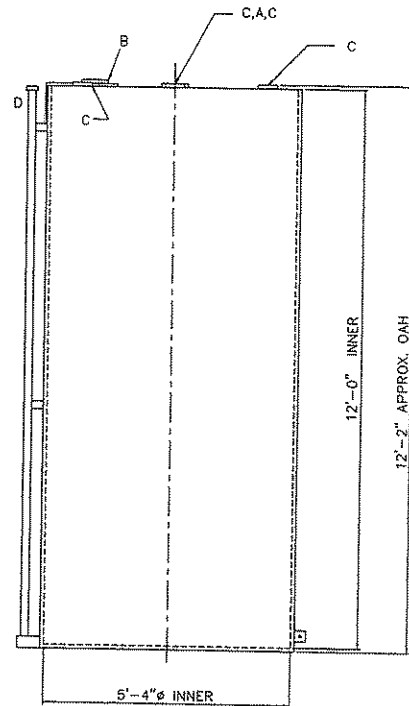
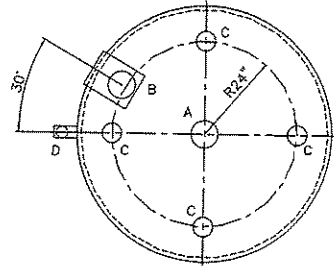
1. SEE PLAN VIEW FOR TRUE ORIENTATION AND LOCATION OF FITTING
2. LIFTING LUGS FOR UNLOADING UNIT & STANDING UNIT UPRIGHT TO BE PLACED AS NEEDED BY FABRICATION SHOP
3. A 3x3x1/8" STEEL GROUNDING LUG WITH A 3/8" Ø HOLE IN CENTER TO BE PLACED ON SHELL AT BOTTOM OF TANK IN LINE WITH LIFTING LUGS


DESIGN DATA

CAPACITY - 2,000 GALLONS
 TYPE - VERTICAL DOUBLE WALL
 ING. REQ. - -
 OPERATING PRESSURE - ATMOSPHERIC
 SPECIFIC GRAVITY = 1.0
 TANK MATERIAL - MILD CARBON STEEL
 THICKNESS - TOP- FLAT SINGLE WALL 10 GA
 THICKNESS - INNER- SHELL: 7 GA BOTTOM: 1/4"
 THICKNESS - OUTER- SHELL: 7 GA BOTTOM: 1/4"
 CONSTRUCTION - LAP WELD OUTSIDE ONLY- INNER & OUTER
 TOP & BOTTOM HEADS ARE FLAT FLANGED
 TANK TEST - INNER: 2 PSIG, OUTER:- 2 PSIG & FULL VACUUM
 INT. FINISH - NONE
 EXT. FINISH - SHOP PRIMER
 LABEL - UL 142

LEGEND

A	6" HALF COUP. (PRIMARY EMERGENCY VENT)
B	6" HALF COUPLING, SECONDARY EMERGENCY VENT IN INTERSPACE EXTENSION BOX, MARK w/ SPECIAL WARNING LABEL
C	4" HALF COUPLING
D	2" INTERSTITIAL MONITOR PIPE
E	-
F	-



 Highland Tank®	
2,000 GAL 64" Ø DW VERTICAL	
CUSTOMER:	
PROJECT:	
QUOTE NO:	DRW'D BY:
SCALE: DATE:	DATE: DWG. NO.:
1/2"=1'-0"	02000AVDW64

Recommended Guide Specification for Aboveground Vertical
Double Wall UL-142 Steel Storage Tank

Furnish a 4,000 gallon aboveground vertical, double wall, steel storage tank 10'6" high with double bottom, 8'0" in diameter. Tank shall be fabricated from mild carbon steel with a flat-flanged bottom inner head, a flat bottom outer head and a flat top. Inner tank walls and bottom shall be constructed with ¼" gauge steel; tank top shall be constructed with 7 gauge steel; outer tank walls from 7 gauge min. and outer bottom with ¼" gauge steel. Double wall tank shall be fitted with a monitoring tube the height of the tank and topped with 2" diameter threaded fitting for monitoring the interstitial space between the inner and outer walls.

Tank installer shall be responsible for installing an interstitial monitoring system OR owner shall be responsible for checking the interstice on a weekly basis and assuring written record of such checks. Interstitial monitoring tube shall be provided with a warning label identifying it as a monitoring tube only.

All items included in tank unit shall be commercial grit blasted (SSPC-6 standards), then promptly coated with an epoxy grey primer (10 mils min.) and finish coated with a white urethane (10 mils min.).

The tank unit shall be manufactured in conformance with Underwriters Laboratories' UL-142 specifications and so labeled.

Tank top shall be supplied with (4) 4" threaded fittings every 90° on a 26" radius and (1) 6" threaded fitting at the top center point for emergency venting purposes. Additionally, (1) 6" interstitial emergency vent fitting assembly shall be provided at 315°. Thread protectors shall be inserted in all threaded openings prior to shipment.

Tank shall be air tested at the factory in accordance with UL-142 standards, but MUST be retested at the jobsite by the installer prior to installation in accordance with applicable NFPA and BOCA standards. Outer tank shall not be directly subjected to air pressure except via valves releasing test pressure from the inner tank. See manufacturer's test instructions.

Options & Accessories:

The following shall be supplied with the tank:

(2) 6" Emergency Vents: for inner and outer tanks.

____ 7 Gallon Overfill Protector with hand pump

____ External Ladder & Platform OR ____ External Stairway

____ Pump Platform

____ 4" x 4" x 1/2" Clip Angle for anchoring

____ Internal Coating _____ (Must include interior weld which requires manway.)

Level Sensing System(s)
 Double Wall Tank Interstitial Leak Detection System

Warranty:

The subject tank shall be warranted by Highland Tank & Mfg. Co. to be free from defects in manufacturing, workmanship and materials. Highland Tank warranty shall stipulate repair or replacement, at its sole discretion F.O.B. factory, within a period of one year after date of shipment, any item of their manufacture. All other items shall be warranted by their respective manufacturers. Liability will be understood to be limited, as stated above, and does not include labor, installation costs, indirect or consequential damages of any kind. Tanks must be returned to the factory and if found to be defective upon examination, will be repaired, replaced or credit will be issued at the manufacturer's option.

Approved Manufacturer:

Tank to be manufactured by Highland Tank at one of the following locations:
Stoystown, PA, Manheim, PA, Watervliet, NY, or Greensboro, NC.

NOTE: ALL RIGHTS RESERVED. THIS DRAWING MUST NOT BE REPRODUCED OR ANY FORM WITHOUT THE WRITTEN PERMISSION OF HIGHLAND TANKS. HIGHLAND TANKS SHALL BE RESPONSIBLE ONLY FOR ITEMS INDICATED ON THIS FABRICATION DRAWING UNLESS OTHERWISE NOTED. CUSTOMER IS RESPONSIBLE FOR VERIFYING CORRECTNESS OF SIZE AND LOCATION OF FITTINGS, ACCESSORIES, AND COATINGS SHOWN ON THIS DRAWING.

TOLDS UP BY FINISHED PAINT IS REQUIRED BY INSTALLATION. CONTRACTOR TOUCH UP PAINT SHEPPARD WITH TANK.

NOTES

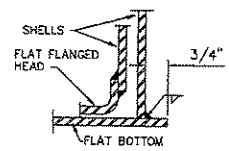
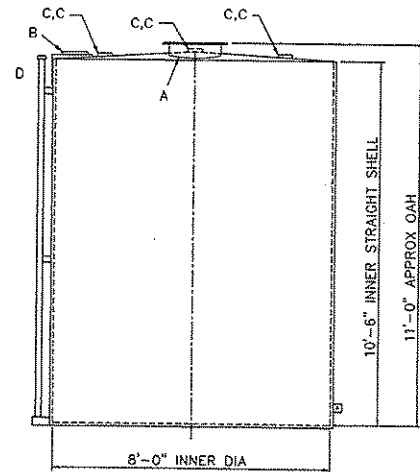
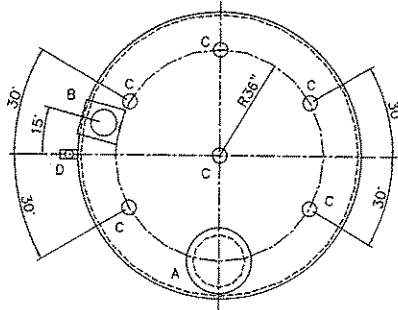
1. SEE PLAN VIEW FOR TRUE ORIENTATION AND LOCATION OF FITTING
2. LIFTING LUGS FOR UNLOADING UNIT & STANDING UNIT UPRIGHT TO BE PLACED AS NEEDED BY FABRICATION SHOP
3. A 3x3/4" STEEL GROUNDING LUG WITH A 3/8" HOLE IN CENTER TO BE PLACED ON SHELL AT BOTTOM OF TANK IN LINE WITH LIFTING LUGS

DESIGN DATA

CAPACITY - 4,000 GALLONS
 TYPE - VERTICAL DOUBLE WALL
 NO. REQ. - -
 OPERATING PRESSURE - ATMOSPHERIC
 SPECIFIC GRAVITY = 1.0
 TANK MATERIAL - MILD CARBON STEEL
 THICKNESS - TOP - 7 GA SINGLE WALL SHALLOW SLOPE
 THICKNESS - INNER - SHELL: 7 GA BOTTOM: 1/4"
 THICKNESS - OUTER - SHELL: 7 GA BOTTOM: 1/4"
 CONSTRUCTION - LAP WELD OUTSIDE ONLY - INNER & OUTER
 TANK TEST - INNER: 2 PSIG, OUTER: - 2 PSIG & FULL VACUUM
 INT. FINISH - NONE
 EXT. FINISH - SHOP PRIMER
 LABEL - UL 142

LEGEND

A	18" LOOSE BOLT MANWAY
B	6" HALF COUPLING IN INTERSTICE EXTENSION BOX - MARK WITH LABEL - SECONDARY EMERGENCY VENT USE ONLY
C	4" HALF COUPLING
D	2" INTERSTITIAL MONITOR PIPE
E	-
F	-



BOTTOM JOINT DETAIL

Highland Tank®	
4,000 GAL 96° DW VERTICAL	
CUSTOMER:	
PROJECT:	
QUOTE NO.	CHECK BY:
SCALE: DATE:	DWG. BY: DWG. REV:
3/8-1-0	04000AVDW96

Recommended Guide Specification for Aboveground Vertical
Double Wall UL-142 Steel Storage Tank

Furnish a 5,000 gallon aboveground vertical, double wall, steel storage tank 13'4" high with double bottom, 8'0" in diameter. Tank shall be fabricated from mild carbon steel with a flat-flanged bottom inner head, a flat bottom outer head and a flat top. Inner tank walls and bottom shall be constructed with 1/4" gauge steel; tank top shall be constructed with 7 gauge steel; outer tank walls from 7 gauge min. and outer bottom with 1/4" gauge steel. Double wall tank shall be fitted with a monitoring tube the height of the tank and topped with 2" diameter threaded fitting for monitoring the interstitial space between the inner and outer walls.

Tank installer shall be responsible for installing an interstitial monitoring system OR owner shall be responsible for checking the interstice on a weekly basis and assuring written record of such checks. Interstitial monitoring tube shall be provided with a warning label identifying it as a monitoring tube only.

All items included in tank unit shall be commercial grit blasted (SSPC-6 standards), then promptly coated with an epoxy grey primer (10 mils min.) and finish coated with a white urethane (10 mils min.).

The tank unit shall be manufactured in conformance with Underwriters Laboratories' UL-142 specifications and so labeled.

Tank top shall be supplied with (4) 4" threaded fittings every 90° on a 26" radius and (1) 6" threaded fitting at the top center point for emergency venting purposes. Additionally, (1) 6" interstitial emergency vent fitting assembly shall be provided at 315°. Thread protectors shall be inserted in all threaded openings prior to shipment.

Tank shall be air tested at the factory in accordance with UL-142 standards, but **MUST** be retested at the jobsite by the installer prior to installation in accordance with applicable NFPA and BOCA standards. Outer tank shall not be directly subjected to air pressure except via valves releasing test pressure from the inner tank. See manufacturer's test instructions.

Options & Accessories:

The following shall be supplied with the tank:

(2) 6" Emergency Vents: for inner and outer tanks.

____ 7 Gallon Overfill Protector with hand pump

____ External Ladder & Platform OR ____ External Stairway

____ Pump Platform

____ 4" x 4" x 1/2" Clip Angle for anchoring

____ Internal Coating _____ (Must include interior weld which requires manway.)

Level Sensing System(s)
 Double Wall Tank Interstitial Leak Detection System

Warranty:

The subject tank shall be warranted by Highland Tank & Mfg. Co. to be free from defects in manufacturing, workmanship and materials. Highland Tank warranty shall stipulate repair or replacement, at its sole discretion F.O.B. factory, within a period of one year after date of shipment, any item of their manufacture. All other items shall be warranted by their respective manufacturers. Liability will be understood to be limited, as stated above, and does not include labor, installation costs, indirect or consequential damages of any kind. Tanks must be returned to the factory and if found to be defective upon examination, will be repaired, replaced or credit will be issued at the manufacturer's option.

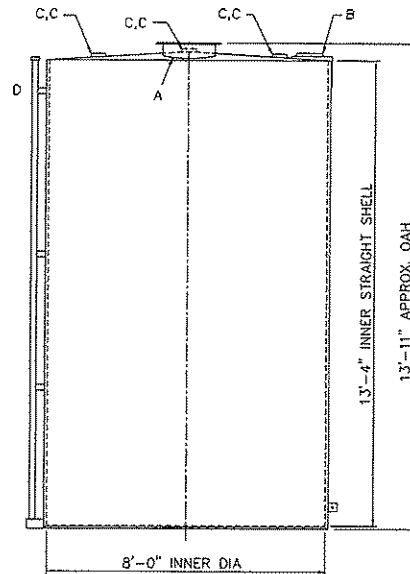
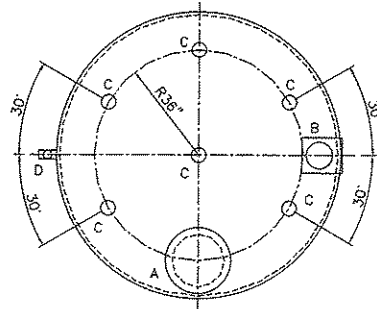
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NOTES

1. SEE PLAN VIEW FOR TRUE ORIENTATION AND LOCATION OF FITTING
2. LIFTING LUGS FOR UNLOADING UNIT & STANDING UNIT UPRIGHT TO BE PLACED AS NEEDED BY FABRICATION SHOP
3. A 3x3x1/4" STEEL GROUNDING LUG WITH A 3/8" HOLE IN CENTER TO BE PLACED ON SHELL AT BOTTOM OF TANK IN LINE WITH LIFTING LUGS

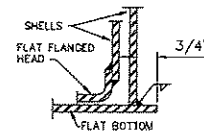


DESIGN DATA


CAPACITY - 5,000 GALLONS
TYPE - VERTICAL DOUBLE WALL
NO. REQ. - -
OPERATING PRESSURE - ATMOSPHERIC
SPECIFIC GRAVITY = 1.0
TANK MATERIAL - MILD CARBON STEEL
THICKNESS-TOP-7 GA SINGLE WALL SHALLOW SLOPE
THICKNESS-INNER-SHELL: 7 GA BOTTOM: 1/4"
THICKNESS-OUTER-SHELL: 7 GA BOTTOM: 1/4"
CONSTRUCTION - LAP WELD OUTSIDE ONLY- INNER & OUTER
TANK TEST - INNER: 2 PSIG, OUTER:- 2 PSIG & FULL VACUUM
INT. FINISH - NONE
EXT. FINISH - SHOP PRIMER
LABEL - UL 142

LEGEND

A	18" LOOSE BOLT MANWAY
B	8" HALF COUPLING IN INTERSPACE EXTENSION BOX - MARK WITH LABEL- SECONDARY EMERGENCY VENT USE ONLY
C	4" HALF COUPLING
D	2" INTERSTITIAL MONITOR PIPE
E	-
F	-



BOTTOM JOINT DETAIL

 Highland Tank®	
5,000 GAL 96° DW VERTICAL	
CUSTOMER:	
PROJECT:	
QUOTE NO:	DESK'D BY:
SCALE: 3/8"=1'-0"	DATE: 05000AVDW96

Carbon Steel
Pipe (Plain-End)
A53B (2" & smaller)

Specification	A53	Standard: Schedule 40																									
Scope	Covers Seamless and Welded, Black and hot-dipped galvanized nominal (average) wall pipe for coiling, bending, flanging and other special purposes and is suitable for welding. Continuous-Welded pipe is not intended for flanging. Purpose for which pipe is intended should be stated on order.																										
Kinds of Steel Permitted For Pipe Material	Open-hearth Basic-oxygen Electric-furnace																										
Hot-Dipped Galvanizing	Sets standards for coating of pipe with zinc inside and outside by the hot-dipped process. Weight of coating must not average less than 1.8 oz. Per square foot and not less than 1.6 oz. Per square foot.																										
Permissible Variations in Wall Thickness	The minimum wall thickness at any point shall not be more than 12.5% under the nominal wall thickness specified.																										
Chemical Requirements	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 10%;">C max %</th> <th style="width: 10%;">Mn max %</th> <th style="width: 10%;">P max %</th> <th style="width: 10%;">S max %</th> </tr> </thead> <tbody> <tr> <td>Seamless or ERW</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Grade A</td> <td>0.25</td> <td>0.95</td> <td>0.05</td> <td>0.06</td> </tr> <tr> <td> Grade B</td> <td>0.30</td> <td>1.20</td> <td>0.05</td> <td>0.06</td> </tr> <tr> <td>Continuous-weld</td> <td>-</td> <td>-</td> <td>0.08</td> <td>0.06</td> </tr> </tbody> </table>			C max %	Mn max %	P max %	S max %	Seamless or ERW					Grade A	0.25	0.95	0.05	0.06	Grade B	0.30	1.20	0.05	0.06	Continuous-weld	-	-	0.08	0.06
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Hydrostatic Testing	Hydrostatic inspection test pressures for plain end and threaded and coupled pipe are specified. Hydrostatic pressure shall be maintained for not less than 5 seconds for all sizes of seamless and electric resistance-weld pipe.																										
Permissible Variations in Weights per Foot	Plus or Minus 10%																										
Permissible Variations in Outside Diameter	Outside Diameter at any point shall not vary from standard specified more than -- <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;"><u>For NPS 1 1/2 and Smaller Sizes</u></th> <th style="width: 50%; text-align: center;"><u>For NPS 2 and Larger Sizes</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1/64 " 1/32" under</td> <td style="text-align: center;">1% over 1% under</td> </tr> </tbody> </table>		<u>For NPS 1 1/2 and Smaller Sizes</u>	<u>For NPS 2 and Larger Sizes</u>	1/64 " 1/32" under	1% over 1% under																					
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1/64 " 1/32" under	1% over 1% under																										
Mechanical Tests Specified	Tensile Test -- Transverse required on ERW for NPS 8 and large. Sending Test (Cold) -- STD and XS-NPS 2 and under XXS-NPS 1 1/4 and under. <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 30%; text-align: center;"><u>Degree of Bend</u></th> <th style="width: 30%; text-align: center;"><u>Diameter of Mandrel</u></th> </tr> </thead> <tbody> <tr> <td> For Normal A53 Uses</td> <td style="text-align: center;">90</td> <td style="text-align: center;">12 x nom. dia. of pipe</td> </tr> <tr> <td> For Close Coiling</td> <td style="text-align: center;">180</td> <td style="text-align: center;">8 x nom. dia. of pipe</td> </tr> </tbody> </table> Flattening Test -- NPS 2 and larger STD and XS. (Not required for XXS pipe).			<u>Degree of Bend</u>	<u>Diameter of Mandrel</u>	For Normal A53 Uses	90	12 x nom. dia. of pipe	For Close Coiling	180	8 x nom. dia. of pipe																
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Number of Tests Required	Seamless and Electric-Resistance-Welded -- Bending, flattening, tensile on one length of pipe from each lot of 500 lengths or less of a size. Continuous-Weld -- Bending, flattening, tensile <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;"><u>NPS 1 1/2 & smaller</u></th> <th style="width: 50%; text-align: center;"><u>NPS 2 & larger</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">one/25 tons</td> <td style="text-align: center;">one/50 tons</td> </tr> </tbody> </table>		<u>NPS 1 1/2 & smaller</u>	<u>NPS 2 & larger</u>	one/25 tons	one/50 tons																					
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Lengths	Standard Weight Single Random -- 16' - 22'. 5% may be jointers. If Plain Ends -- 5% may be 12' - 16'. Double Random -- Shortest Length 22', minimum average for order 35'. Extra Strong & Double Extra Strong Single Random -- 12' - 22'. 5% may be 6' - 12'. Double Random (XS and lighter) -- Shortest Length 22', minimum average for order 35'. Lengths longer than single random with wall thicknesses heavier than XS subject to negotiation.																										
Required Markings on Each Length (On Tags attached to each Bundle in case of Bundled Pipe)	Rolled, Stamped or Stenciled (Mfrs. Option) Name or brand of manufacturer. Kind of pipe, that is, Continuous Welded, Electric-Resistance-Welded A, Electric-Resistance-Welded B, Seamless A; or Seamless B; XS for extra strong, XXS for double extra strong. ASTM A53 Length of pipe.																										
General Information	Couplings -- Applied handling tight. Couplings, 2" and smaller straight tapped, other sizes taper tapped. Thread Protection -- Applied to pipe 4" and large. End Finish (unless otherwise specified) -- STD or XS, or wall thicknesses less than 0.500 in. (excluding XXS): Plain and beveled. All XXS and wall thicknesses over 0.500 in.: Plain end square cut.																										

Forged Steel 3000# Socket 2" & Smaller
--

Malleable, Cast Iron, Forged Steel, and Nipple standards & specifications.

Standards and Specifications

	DIMENSIONS	MATERIAL	GALVANIZING	THREAD	PRESSURE RATING	FEDERAL/ OTHER
M.I. Fittings						
Class 150	ANSI B16.3	ASTM A-197	ASTM A-153	ANSI B.1.20.1+	ANSI B16.3	WW-P-521
Class 300	ANSI B16.3	ASTM A-197	ASTM A-153	ANSI B.1.20.1+	ANSI B16.3	
M.I. Unions						
Class 150	ANSI B16.39	ASTM A-197	ASTM A-153	ANSI B.1.20.1+	ANSI B16.39	WW-U-531
Class 250	ANSI B16.39	ASTM A-197	ASTM A-153	ANSI B.1.20.1+	ANSI B16.39	WW-U-531
Class 300	ANSI B16.39	ASTM A-197	ASTM A-153	ANSI B.1.20.1+	ANSI B16.39	WW-U-531
Cast-Iron Threaded Fittings						
Class 125	ANSI B16.4	ASTM A-126(A)	ASTM A-153	ANSI B.1.20.1+	ANSI B16.4	WW-P-501
Class 250	ANSI B16.4	ASTM A-126(A)	ASTM A-153	ANSI B.1.20.1+	ANSI B16.4	WW-P-501
C.I. Plugs and Bushings						
	ANSI B16.14	ASTM A-126(A)	ASTM A-153	ANSI B.1.20.1+	*	WW-P-471
C.I. Drainage Threaded Fittings						
	ANSI B16.12	ASTM A-126(A)	ASTM A-153	ANSI B.1.20.1+	*	WW-P-491
C.I. Flanges and Flanged Fittings						
Class 125 (1"-12")	ANSI B16.1	ASTM A-126 (A) or (B)	ASTM -A 153	ANSI B.1.20.1+	ANSI B16.1	WW-F-406
Class 125 (14"-up)	ANSI B16.1	ASTM A-126 (B)	ASTM -A 153	ANSI B.1.20.1+	ANSI B16.1	WW-F-406
Class 250 (1"-12")	ANSI B16.1	ASTM A-126 (A) or (B)	ASTM -A 153	ANSI B.1.20.1+	ANSI B16.1	WW-F-406
Class 250 (14"-up)	ANSI B16.1	ASTM A-126 (B)	ASTM -A 153	ANSI B.1.20.1+	ANSI B16.1	WW-F-406
Forged Steel Socket Fittings						
Class 2000, 3000, 5000	ANSI B16.11	ASTM A105 A182 A350		ANSI B.1.20.1+	ANSI B16.11	
Pipe Nipples						
Steel Pipe	ASTM A 733			ANSI B.1.20.1+	*	WW-N-351**
Welded		ASTM A 53 Type F				
Welded		ASTM A 120				
Seamless		ASTM A 53 Gr. B. Type S				
Seamless(High Temp.)		ASTM A 106 Gr. B				
Brass		ASTM B 43				

*The Standard

**Compliance with Dimensions and Material Only

*** ANSI B.1.20.1 was ANSI B2.1

Carbon Steel
150# Flanges

**ASTM specifications for weld fittings and flanges.
Grade & composition symbols for carbon weld fittings.**



**Material Specifications for
Carbon Steel
BUTT WELDING FITTINGS**

GRADE SYMBOL	ASTM SPECIFICATION A234	
	WPA (Grade A)	WPB (Grade B)
TYPE OF STEEL	Carbon	Carbon
CHEMICAL COMPOSITION	C-0.25 max.	C-0.30 max.
MINIMUM PHYSICAL REQUIREMENTS	TS-48,000 YP-30,000	TS-60,000 YP-35,000
HEAT TREATMENT	Cooled in Still Air	Cooled in Still Air

**Material Specifications for
Carbon Steel
FLANGES**

GRADE SYMBOL	ASTM SPECIFICATION*			
	A181		A105	
	I	II	I	II
TYPE OF STEEL	Carbon		Carbon	
CHEMICAL COMPOSITION	C-0.35 max.		C-0.35 max.	
MINIMUM PHYSICAL REQUIREMENTS	TS-60,000 YP-30,000	TS-70,000 YP-36,000	TS-60,000 YP-30,000	TS-70,000 YP-36,000
HEAT TREATMENT	Hot forged with finishing temp. above upper critical Cooled in still air		Normalized	

GRADE AND COMPOSITION SYMBOLS FOR CARBON STEEL BUTT-WELDING FITTINGS

WPA	Seamless Pipe.....	ASTM A106 Grade A
	Plate.....	ASTM A285 Grade C
	Forgings.....	ASTM A105 Grade 1
WPB	Bars*.....	ASTM A107 GR. 1008-1022
	Seamless Pipe.....	ASTM A106 Grade B
	Plate.....	ASTM A515 Grade 6S
	Forgings.....	ASTM A105 Grade 11
WPC	Bars*.....	ASTM A107 Gr. 1025-1030
	Seamless Pipe.....	ASTM A106 Grade C
	Plate.....	ASTM A104 Grade 11'
WPLO	Forgings.....	ASTM A104 Grade 11'
	Seamless and Welded Pipe.....	ASTM A332 Grade O
	Plate.....	ASTM A300 Class 1
	Forgings.....	ASTM A350 Grade LF1

* For fittings 2" nominal size and smaller

*Material specifications for the ASME Boiler Code are the same ASTM except the letter S is prefixed thereto. A 35% Carbon maximum for flanges which are to be welded has been established by ASTM A181 and A105.

Adjustable Clevis Hanger

Size Range: 1/2" through 30"

Material: Carbon steel

Finish: Plain or Galvanized, also available plastic or epoxy coated / E.G. FINISH

Service: Recommended for the suspension of stationary pipe lines.

Maximum Temperature: Plain 650° F, Galvanized and Epoxy 450° F

Approvals: Complies with Federal Specification A-A-1192A (Type 1), WW-H-171-E (Type 1) and MSS-SP-69 (Type 1). UL, ULC Listed and FM Approved (Sizes 3/4" through 8").

Installation: Hanger load nut above clevis must be tightened securely to assure proper hanger performance. When an oversized clevis is used, a pipe spacer should be placed over the clevis bolt as a spacer to assure that the lower U-strap will not move in on the bolt. For ductile iron pipe sizes, see Figure

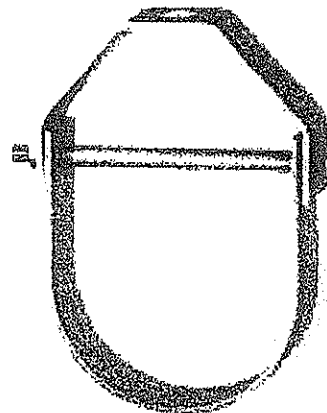
Adjustment: Vertical adjustment without removing pipe may be made from 3/8" through 5 1/4", varying with the size of clevis. Tighten upper nut after adjustment.

Features:

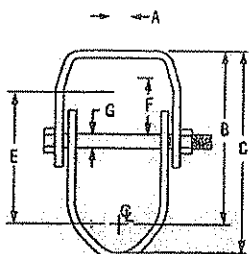
- Design has yoke on outside of lower U-strap so yoke cannot slide toward center of bolt, thus bending of bolt is minimized.
- Sizes 5" and up have rod and two nuts instead of bolt and nut; thread length on clevis rod is such that the thread locks the nuts in place, and threads are not in shear plane.

Ordering: Specify pipe size, figure number, name and finish.

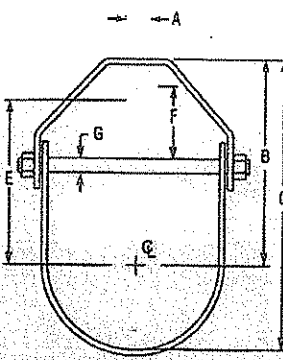
Note: Punched forming holes may be present on certain sizes of this clevis hanger. These holes are solely for the purpose of manufacturing, and do not effect the structural integrity or load carrying capacities of these hangers.



Clevis Hangers



1/2" through 3/4" Pipe



1" through 30" Pipe

Loads (lbs) • Weights (lbs) • Dimensions (in)										
Pipe Size	Max Load	Span Ft.	Weight	Rod Size A	B	C	Rod Take Out E	Adjust. F	G	
1/2	610	7*	0.34	3/8	2 3/16	2 1/16	1 1/2	5/8	1/4	
3/4			0.34		2		1 5/16			
1	730	9*	0.35	3/8	2 5/16	3	1 3/8	7/8	1/4	
1 1/4			0.40		2 3/8		1 11/16			
1 1/2			0.45		2 13/16		2 1/8			
2			0.50		3 1/16		2 5/8			
2 1/2	1,350	11*	0.65	1/2	4 1/16	5 1/2	3 3/16	1 5/16	3/8	
3			0.85		4 3/4		4 1/8			
3 1/2			1.10		5 1/16		4 3/8			
4	1,430	14*	1.51	5/8	5 9/16	7 3/16	4 1/2	1 11/16	3/8	
5			1.70		6 9/16		8 1/16			
6	1,940	17*	3.10	3/4	6 1/16	10 1/4	5 3/4	1 11/16	1/2	
8	2,000	19*	4.75		8 3/8		12 1/16			7 3/8
10	3,600	22*	8.60	7/8	9 7/8	15 1/4	8 3/8	2 1/8	5/8	
12	3,800	23*	11.20		11 1/16		17 1/16			10 1/8
14	4,200	25*	12.50	1	12 3/16	19 3/16	10 11/16	2 11/16	3/4	
16	4,600	27	19.85		14		22			12
18	4,800	28	22.25		15 1/16		24 1/16			13 1/16
20	4,800	30	40.33		17 3/16		27 3/16			15 3/16
24	4,800	32	48.83	1 1/4	19 3/16	31 1/16	17 3/16	3 3/4	1 1/4	
30	6,000	33	70.18		24 3/16		39 3/16			21 3/16

Span represents the maximum recommended distance between hangers on a continuous and straight run of horizontal standard weight steel pipe filled with water. In all cases, verify that chosen location of hangers does not subject hangers to a load greater than the maximum recommended load shown above.
 *Indicates that span represents the maximum span for water filled pipe as given in Table 1 of page PH-207.

Standard U-bolt
Special U-bolt (non-standard)

U-Bolts

Size Range: 1/2" through 36"

Material: Carbon steel U-bolt and four finished hex nuts

Finish: Plain or Galvanized / E.G. Finish

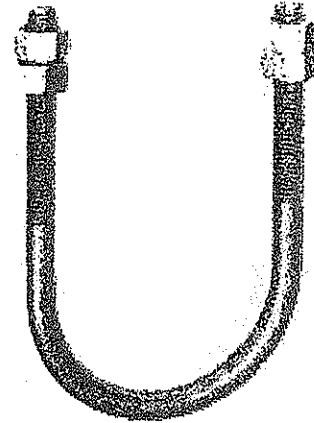
Service: Recommended for support, or guide of heavy loads; often employed in power, process plant and marine service.

Approvals: Complies with Federal Specification A-A-1192A (Type 24)
WW-H-171-E (Type 24) and MSS-SP-69 (Type 24).

Ordering Fig. Specify pipe size x rod size (e.g., 6 x 3/8), figure number, name. U-bolt will be furnished with longer tangents D or with longer threads E if so required and ordered. If hex nuts are not required, specify "without hex nuts".

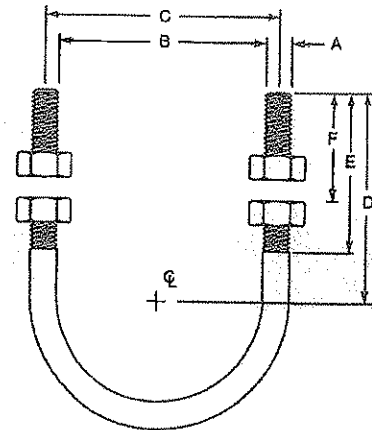
Ordering Fig. Specify figure number, name, material specification, dimensions A, B, C, D, and E, and "with hex nuts" or "without hex nuts".

Note: The acceptability of galvanized coatings at temperatures above 450°F is at the discretion of the end user.



Loads (lbs) • Weights (lbs) • Dimensions (in) ☐

Pipe Size	Rod Size A	Max Normal Load		650° F Max Side Load	Wt.	B	C	D	E	F	
		650° F	750° F								
1/2	1/4	580	454	145	0.11	1 5/16	1 3/8	2 3/4	2 1/8	2 5/16	
3/4					0.12	1 1/8	1 3/8			2 7/32	
1					0.12	1 3/8	1 5/8			2 3/32	
1 1/4	3/8	1,460	1,144	365	0.28	1 11/16	2 1/16	2 1/2	2 1/16	2 1/32	
1 1/2					0.30	2	2 3/8			3	2 1/16
2					0.33	2 7/16	2 13/16			3 1/4	2 1/16
2 1/2	1/2	2,700	2,114	675	0.73	2 15/16	3 1/16	3	2 5/16	2 5/16	
3					0.78	3 9/16	4 1/16			4	2 1/4
3 1/2					0.84	4 1/16	4 9/16			4 1/4	2 1/4
4					0.90	4 9/16	5 1/16			4 1/2	2 7/32
5					1.0	5 5/8	6 1/8			5	2 7/32
6	5/8	4,320	3,382	1,080	2.0	6 3/4	7 3/8	3 3/4	2 13/16	2 13/16	
8					2.3	8 3/4	9 3/8			7 1/8	2 13/16
10	3/4	6,460	5,060	1,615	4.9	10 7/8	11 5/8	4	3	3	
12					7.7	12 7/8	13 3/4			9 5/8	3 1/4
14					8.3	14 1/8	15			10 1/4	3 1/4
16	1	11,800	9,240	-	9.2	16 1/8	17	4 1/4	3 5/8	3 5/8	
18					13.5	18 1/8	19 1/8			12 5/8	3 5/8
20					14.6	20 1/8	21 1/8			13 5/8	3 5/8
24					16.9	24 1/8	25 1/8			15 5/8	3 5/8
30					19.1	30 1/8	31 1/8			18 5/8	3 5/8
36					23.2	36 1/8	37 1/8			21 5/8	3 5/8



☐ loads, weights and dimensions shown do not apply for Fig. 1

Max load rating for carbon steel is 2 x max load rating for rod size "A"

Max load rating for stainless steel is 0.85 times the maximum stated load ratings listed above.

*When the combination of a normal load and a side load occurs, a straight line interaction formula may be used to determine if the Fig. 137 is still within the allowable stress range:

$$P_n/P_{na} + P_s/P_{sa} \leq 1$$

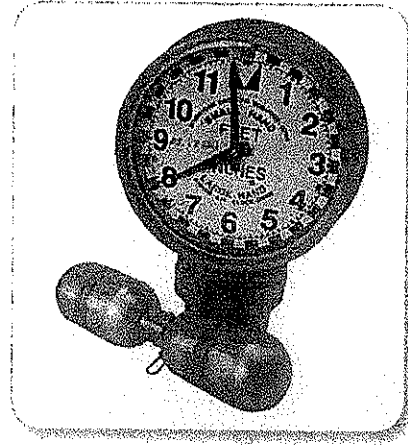
Where: P_n = actual applied normal load; P_{na} = allowable normal load for the
 P_s = actual applied side load; P_{sa} = allowable side load for the Fig.

Nuts must be snug tight in installation to achieve side loads shown.

Model 818 Clock Gauge

SPECIFICATION SHEET

The Morrison Fig. 818 Clock Gauge is used for measuring liquid level in aboveground storage tanks. Readout format is on a standard 12 hour clock face. Small hand represents feet and the large hand inches. Gauge can be read up to 20-30 ft. away to within 1/8". Maximum measurement capability is 12 feet. The gauge can be rotated 360° after mounting. Vapor tight up to 5 psi.



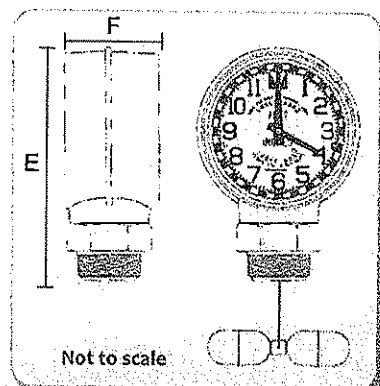
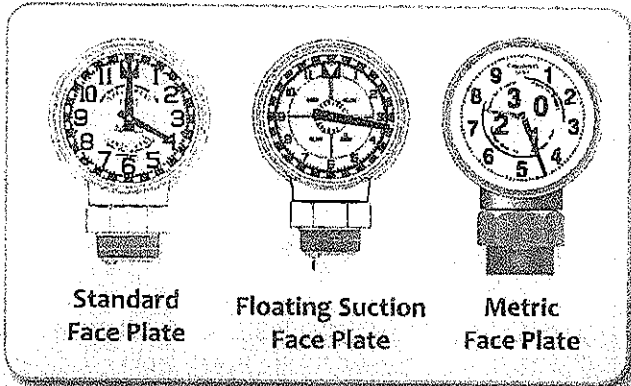
ID Number	A	B	C	D	E	F	G	H	I
818-0100 AG	N	M	ST	S	8.54	3.48	6.06	4.5	NPT
818-0100 AGEVR	N	M	ST	S	8.54	3.48	6.06	4.5	NPT
818-0400 AG	N	M	DT	S	8.54	3.48	6.06	4.5	NPT
818-0400 AGEVR	N	M	DT	S	8.54	3.48	6.06	4.5	NPT
818F-0100 AG	N	F	ST	S	9.5	3.48	6.06	4.5	NPT
818F-0100 AGEVR	N	F	ST	S	9.5	3.48	6.06	4.5	NPT
818F-0400 AG	N	F	DT	S	9.5	3.48	6.06	4.5	NPT
818F-0400 AGEVR	N	F	DT	S	9.5	3.48	6.06	4.5	NPT
818I-0000 AG	N	M	NO	I	8.54	3.48	6.06	4	NPT
818MEB0100 AG	N	M	ST	M	8.54	3.48	6.06	4.5	BSP
818MEB0400 AG	N	M	DT	M	8.54	3.48	6.06	4.5	BSP
818MEF0100 AG	N	F	ST	M	9.5	3.48	6.06	4.5	NPT
818MEF0100 AGEVR	N	F	ST	M	9.5	3.48	6.06	4.5	NPT
818MEF0400 AG	N	F	DT	M	9.5	3.48	6.06	4.5	NPT
818MEF0400 AGEVR	N	F	DT	M	9.5	3.48	6.06	4.5	NPT
818MET0100 AG	N	M	ST	M	8.54	3.48	6.06	4.5	NPT
818MET0100 AGEVR	N	M	ST	M	8.54	3.48	6.06	4.5	NPT
818MET0400 AG	N	M	DT	M	8.54	3.48	6.06	4.5	NPT
818MET0400 AGEVR	N	M	DT	M	8.54	3.48	6.06	4.5	NPT
818T-0100 AG**	N	M	ST	S	8.54	3.48	6.06	4.5	NPT
818T-0400 AG**	N	M	DT	S	8.54	3.48	6.06	4.5	NPT
818FT-0100 AG**	N	F	ST	S	9.5	3.48	6.06	4.5	NPT
818FT-0400 AG**	N	F	DT	S	9.5	3.48	6.06	4.5	NPT
818MEFT400 AG**	N	F	DT	M	9.5	3.48	6.06	4.5	NPT
818METT400 AG**	N	M	DT	M	8.54	3.48	6.06	4.5	NPT

**Teflon coated, DEF compatible

SPECIFICATION OPTIONS:

- A—Overfill Alarm: Yes/No
- B—Body Connection: Male (M), Female (F)
- C—Float Device: Standard 2" Float (ST), Drop Tube Float (DT), or No Float (NO)
- D—Face Plate: Standard (S), Metric (M), Floating Suction (I)
- E—Height in inches (see diagram below)
- F—Width in inches (see diagram below)
- G—Clock Diameter: (Inches)
- H—Shipping Weight: (Lbs)
- I—Body: Aluminum with 2" NPT or BSP (Metric) Connection

Float*: Stainless Steel; Cable: Stainless Steel



570 E. 7th Street, P.O. Box 238 | Dubuque, IA 52004-0238
 t. 563.583.5701 | 800.553.4840 | f. 563.583.5028

www.morbros.com

Model 244 Emergency Vents | 4-inch

SPECIFICATION SHEET

The Fig. 244 Emergency Vent (pressure relief only) Series is used on aboveground storage tanks, as a code requirement, to help prevent the tank from becoming over-pressurized and possibly rupturing if ever exposed to fire. The vent must be used in conjunction with a "normal vent". Correct application of this vent requires proper vent size and selection for the tank system in order to meet the specific venting capacity requirements. The new design increases protection against weather, improves manufacturability and helps limit and control dust accumulation.

Code Compliance

API 2000; International Fire Code; National Fire Code of Canada; NFPA 1, 30, 30A, 31, 37, 110; PEI RP200; PEI RP800; Underwriters Laboratories Inc. UL-142, UL-2085, UL-2244; Underwriters Laboratories of Canada CAN/ULC S601-07, CAN/ULC S602-07, CAN/ULC S652-08.

Additional References

NFPA 30, UL 142, Morrison Venting Guide



Fig. 244OF



Fig. 244OM

WARNING: DO NOT FILL OR UNLOAD FUEL FROM A STORAGE TANK UNLESS IT IS CERTAIN THAT THE TANK VENTS WILL OPERATE PROPERLY. Morrison tank vents are designed only for use on shop fabricated atmospheric tanks which have been built and tested in accordance with UL 142, NFPA 30 & 30A, and API 650 and in accordance with all applicable local, state, and federal laws. In normal operation, dust and debris can accumulate in vent openings and block air passages. Certain atmospheric conditions such as a sudden drop in temperature, below freezing temperatures, and freezing rain can cause moisture to enter the vent and freeze which can restrict internal movement of vent mechanisms and block air passages. All storage tank vent air passages must be completely free of restriction and all vent mechanisms must have free movement in order to insure proper operation. Any restriction of airflow can cause excessive pressure or vacuum to build up in the storage tank, which can result in structural damage to the tank, fuel spillage, property damage, fire, injury, and death. Monthly inspection, and immediate inspection during freezing conditions, by someone familiar with the proper operation of storage tank vents, is required to insure venting devices are functioning properly before filling or unloading a tank.

 MORRISON BROS. CO.

570 E. 7th Street, P.O. Box 238 | Dubuque, IA 52004-0238
t. 563.583.5701 | 800.553.4840 | f. 563.583.5028

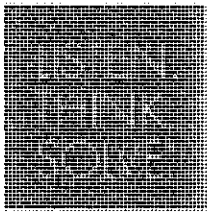
www.morbro.com

Part Number	A	B	C	D	E	F	G	Diameter	Height	Weight	Screen
244O-0100 AV	4	131,700		8	I	A	AL	7.1	3.4	10	
244O-0170 AV	4	103,799		16	I	A	AL	7.1	4.3	18	
244O-0170AVEVR	4	103,799		16	I	B	AL	7.1	4.3	18	
244OB-0100 AV	4	131,700	B	8	I	A	AL	7.1	3.4	10	
244OB-0170 AV	4	103,799	B	16	I	A	AL	7.1	4.3	18	
244OI-0100 AV	4	131,700		8	I	A	I	7.1	3.4	12	
244OI-0170 AV	4	103,799		16	I	A	I	7.1	4.3	21	
244OS-0100 AV	4	117,160		8	I	A	AL	7.1	3.4	10	S
244OS-0170 AV	4	94,906		16	I	A	AL	7.1	4.3	18	S
244OS-0170AVEVR	4	94,906		16	I	B	AL	7.1	4.3	18	S
244OSBSP0100 AV	4	117,160	B	8	I	A	AL	7.1	3.4	10	S
244OF-0170 AV	4	103,799	F	16	I	A	AL	7.1	3.4	20	
244OF-0170 AVE	4	103,799	F	16	I	B	AL	7.1	3.4	20	
244OF-0600 AV	4	131,700	F	8	I	A	AL	7.1	2.5	11	
244OF-0600 AVE	4	131,700	F	8	I	B	AL	7.1	2.5	11	
244OFS0170 AV	4	94,906	F	16	I	A	AL	7.1	3.4	20	S
244OFS0600 AV	4	117,160	F	8	I	A	AL	7.1	2.5	11	S
244OM-0100 AV	4	131,700	M	8	I	A	AL	7.1	4.8	10	
244OM-0170 AV	4	103,799	M	16	I	A	AL	7.1	5.7	19	
244OM-0170AVEVR	4	103,799	M	16	I	B	AL	7.1	5.7	19	
244OMB0100 AV	4	131,700	B	8	I	A	AL	7.1	4.8	10	
244OMB0170 AV	4	103,799	B	16	I	A	AL	7.1	5.7	19	
244OMS0170 AV	4	94,906	B	16	I	A	AL	7.1	5.7	19	S
244OMI0100 AV	4	131,700	M	8	I	A	I	7.1	4.8	13	
244OMI0170 AV	4	103,799	M	16	I	A	I	7.1	5.7	22	
244OMS0100 AV	4	117,160	M	8	I	A	AL	7.1	4.8	10	S
244OMS0170 AV	4	94,906	M	16	I	A	AL	7.1	5.7	19	S
244OMS0170AVEVR	4	94,906	M	16	I	B	AL	7.1	5.7	19	S
244MSB0100 AV	4	117,160	B	8	I	A	AL	7.1	4.8	10	S

Flange = 9" OD; eight (8) .75" diameter holes on 7.5" diameter B.C.

SPECIFICATION OPTIONS:

- A—Size: 4"
- B—Venting Capacity/CFH
- C—Mounting Connection: Female N.P.T. (BLANK); Male N.P.T.(M); Flanged (F); BSP (B)
- D—Pressure Settings: 8, 16 oz/in². Pressure Required to Open Vent.
- E—Cover: Cast Iron Powder Coated (I)
- F—Seat Material: Viton A (A) or Viton B (B)
- G—Body Material: Aluminum (AL) or Iron (I)
- Diameter—Dimension Across Vent
- Height—Dimension From Base to Top When Closed
- Weight—Shipping Weight
- Screen—3 Mesh Stainless Steel
- Bolt—Zinc plated steel

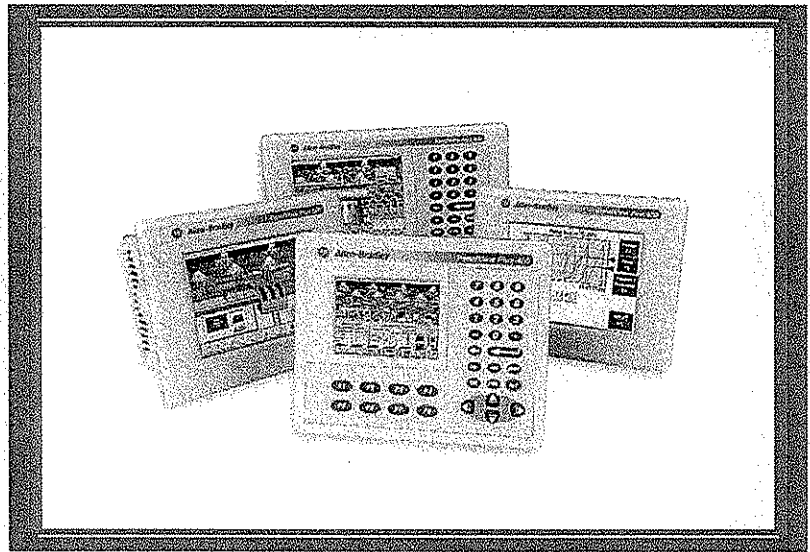


PRODUCT PROFILE

PanelView Plus 400 & 600 Family Operator Interface

Advantages

- Provides maximum flexibility, inventory reduction, and easy upgrades
- Aids in commissioning with complete logic state of connections
- Integrated with FactoryTalk View Machine Edition for advanced functionality including trending, operations, data logging, advanced graphics, and direct viewing of logic addresses
- Includes keypad, touch screen, or keypad/touch screen combination terminals for convenient and flexible operator input options
- Includes CompactFlash card slot for transferring files, logging data, or system upgrades
- Includes password package for immediate startup
- Offers unit level immediate software programs to reduce downtime
- Powerful graphics providing clear and easy views



Overview

PanelView Plus gives operators a clear view into monitoring and controlling applications. With FactoryTalk View Machine Edition already installed and activated, development time is greatly reduced. The PanelView Plus family of products provides a broad range of rugged terminals that offer premier integration with Integrated Architecture and common development software.

PanelView Plus 400 and 600 terminals combine a 4 or 6-inch display, logic module, memory, and power (AC or DC) together in the base unit. Powerful graphics are displayed via 18 bit color or 32 level grayscale displays. Flexible operator input is available through keypad, touch screen, or a keypad/touch screen combination.

All terminals offer an RS232 and USB port, plus an optional Ethernet port. Additional communication options allow you to take advantage of Remote I/O, DH485, DH+, DeviceNet, ControlNet and Isolated RS232.

Take advantage of these additional features on all units:

- Unique mounting mechanism requiring only a single die-cut and no special tools for installation
- Replaceable bezel ID labels for custom terminal or system identification
- Function key legend kit and software for customizing the function key legends of the PanelView Plus 600 keypad terminal

PRODUCT SPECIFICATIONS

	PanelView Plus 400 Grayscale	PanelView Plus 400 Color	PanelView Plus 600 Grayscale	PanelView Plus 600 Color
Display Type	Monochrome Passive Matrix, Film Compensated Super- Twist Nematic (FSTN)	Color Active Matrix Thin Film Transistor (TFT)	Monochrome Passive Matrix, Film Compensated Super- Twist Nematic (FSTN)	Color Active Matrix Thin Film Transistor (TFT)
Display Size	77 x 58 mm (3.7 in.)	71 x 53 mm (3.5 in.)	112 x 84 mm (5.5 in.)	112 x 84 mm (5.5 in.)
Resolution	320 x 240, 32 level grayscale	320 x 240, 18 bit color graphics	320 x 240, 32 level grayscale	320 x 240, 18 bit color graphics
Operator Input	Keypad	Keypad or Keypad/Touch Screen Combination	Keypad, Touch Screen, or Keypad/Touch Screen Combination	
Function Keys	8 (F1 - F8)	8 (F1 - F8)	10 (F1 - F10)	
Real Time Clock	Battery-backed time clock timestamps critical data. Accuracy +/- 2 minutes per month			
Memory Options Available Flash / RAM	Standard 64 MB / 64 MB, Not Expandable			
Electrical Communication Ports	RS232 and (1) USB Only or Ethernet, RS232, (1) USB, plus optional DH485, DH+, or Remote I/O modules, ControlNet and DeviceNet modules			
Power Requirements	18-30V dc or 85-264V ac @ 47-63 Hz			
Power Consumption	dc Power: 25 Watts max. (1.0A @ 24V dc) ac Power: 60 VA max.			
Programming	FactoryTalk View Studio for Machine Edition or FactoryTalk View Studio Enterprise Series			
Environmental Operating Temperature	0-55° C (32-131° F)			
Storage Temperature	-25 - 70° C (-13 - 158° F)			
Humidity	5-95%, noncondensing @ 0-55° C			
Ratings	NEMA 12, 13, 4X, IP54, IP65			
Certifications	cUL certified; UL listed; Class I, Div 2, Groups A,B,C,D; Class II, Div 2, Groups F, G, Class III, T4, Class I Zone 2 Group IIC			
Mechanical Weight Keypad or Key / Touch	.563 kg (1.24 lb)	.635 kg (1.40lb)	.930 kg (2.05 lb)	.930 kg (2.05 lb)
Weight Touch only	N/A	N/A	.789 kg (1.74 lb)	.789 kg (1.74 lb)
Dimensions Overall (H x W x D)	Keypad: 152 x 185 x 90 mm (6.0 x 7.28 x 3.54 in)	Keypad or Keypad/Touch: 152 x 185 x 90 mm (6.0 x 7.28 x 3.54 in)	Keypad or Keypad/Touch: 167 x 266 x 98 mm (6.58 x 10.47 x 3.86 in) Touch only: 152 x 185 x 98 mm (6.0 x 7.28 x 3.86 in)	
Cutout Dimensions	Keypad: 123 x 156 mm (4.86 x 6.15 in)	Keypad or Keypad/Touch: 123 x 156 mm (4.86 x 6.15 in)	Keypad or Keypad/Touch: 142 x 241 mm (5.61 x 9.50 in); Touch Only: 123 x 156 mm (4.86 x 6.15 in)	

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Power, Control and Information Solutions Headquarters

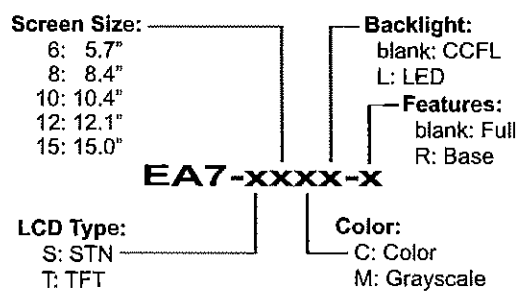
Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444

Europe/Middle East/Africa: Rockwell Automation, Vorstlaan/Boulevard du Souverain 36, 1170 Brussels, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

C-more Operator Panels Overview

Touch Panel Part Number Key:







Getting started

Installing the software and configuring the C-more panel is simple. You will need the following to successfully connect and configure a project for the panel:

- C-more touch panel - 6", 8", 10", 12" or 15" model
- C-more Programming Software, p/n EA-PGMSW
- C-more programming cable, USB or Ethernet
- 24 VDC switching power supply (min. 1.5A, switching) or the optional C-more AC Power Adapter
- Personal Computer - to run C-more programming software
- PLC communications cable (serial or Ethernet) to connect the C-more Touch Panel to your controller

Part Number	Description	Price
EA7-S6M-R	6-inch C-more grayscale STN touch panel (5.7 inch viewable screen), 15 shades of gray, 320 x 240 pixel QVGA screen resolution, 333 MHz CPU, 24 VDC (20.4-28.8 VDC operating range), NEMA 4/4X, IP65 (when mounted correctly; for indoor use only), non-replaceable backlight, 50,000 hour half-life. *Base Model: Built-in USB, no Ethernet or Compact Flash support.	↔
EA7-T6CL-R	6-inch C-more color TFT touch panel (5.7 inch viewable screen), 64K colors, 320 x 240 pixel QVGA screen resolution, 333 MHz CPU, 24 VDC (20.4-28.8 VDC operating range), NEMA 4/4X, IP65 (when mounted correctly; for indoor use only), non-replaceable LED backlight, 50,000 hour half-life. Built-in USB, no Ethernet or Compact Flash support.	↔
EA7-S6M	6-inch C-more grayscale STN touch panel (5.7 inch viewable screen), 15 shades of gray, 320 x 240 pixel QVGA screen resolution, 333 MHz CPU, 24 VDC (20.4-28.8 VDC operating range), NEMA 4/4X, IP65 (when mounted correctly; for indoor use only), non-replaceable backlight, 50,000 hour half-life. Built-in Ethernet and USB; supports Compact Flash.	↔
EA7-T6CL	6-inch C-more color TFT touch panel (5.7 inch viewable screen), 64K colors, 320 x 240 pixel QVGA screen resolution, 333 MHz CPU, 24 VDC (20.4-28.8 VDC operating range), NEMA 4/4X, IP65 (when mounted correctly; for indoor use only), non-replaceable LED backlight, 50,000 hour half-life. Built-in Ethernet and USB; supports Compact Flash.	↔
EA7-T8C	8-inch C-more color TFT touch panel (8.4 inch viewable screen), 64K colors, 640 x 480 pixel VGA screen resolution, 400 MHz CPU, 24 VDC (20.4-28.8 VDC operating range), NEMA 4/4X, IP65 (when mounted correctly; for indoor use only), user replaceable backlight, 50,000 hour half-life. Built-in Ethernet and USB; supports Compact Flash.	↔
EA7-T10C	10-inch C-more color TFT touch panel (10.4 inch viewable screen), 64K colors, 640 x 480 pixel VGA screen resolution, 400 MHz CPU, 24 VDC (20.4-28.8 VDC operating range), NEMA 4/4X, IP65 (when mounted correctly; for indoor use only), user replaceable backlight, 50,000 hour half-life. Built-in Ethernet and USB; supports CompactFlash.	↔
EA7-T12C	12-inch C-more color TFT touch panel (12.1 inch viewable screen), 64K colors, 800 x 600 pixel SVGA screen resolution, 400 MHz CPU, 24 VDC (20.4-28.8 VDC operating range), NEMA 4/4X, IP65 (when mounted correctly; for indoor use only), user replaceable backlight, 50,000 hour half-life. Built-in Ethernet and USB; supports CompactFlash.	↔
EA7-T15C	15-inch C-more color TFT touch panel (15.0 inch viewable screen), 64K colors, 1024 x 768 XGA screen resolution, 400 MHz CPU, 24 VDC (20.4-28.8 VDC operating range), NEMA 4/4X, IP65 (when mounted correctly; for indoor use only), user replaceable backlight, 50,000 hour half-life. Built-in Ethernet and USB; supports CompactFlash.	↔
EA-PGMSW	C-more touch panel Windows-based configuration software. Requires Windows 2000 (Service Pack 4), XP Home or Professional (Service Pack 2) or Vista. Includes software installation guide and CD-ROM. Requires USB 1.1 or Ethernet connection to touch panel. Cables sold separately.	↔
USB-CBL-AB3	Standard 3-ft. (0.9m) USB 2.0 cable, A-type connector to B-type connector, used to connect personal computer to any C-more touch panel for setup and programming. (Note: Touch panels require a 24 VDC power source for configuration and operation.)	↔
USB-CBL-AB6	Standard 6-ft. (1.8m) USB 2.0 cable, A-type connector to B-type connector, used to connect personal computer to any C-more touch panel for setup and programming. (Note: Touch panels require a 24 VDC power source for configuration and operation.)	↔
USB-CBL-AB10	Standard 10-ft (3 meter) USB 2.0 cable, A-type connector to B-type connector, used to connect personal computer to any C-more touch panel for setup and programming. (Note: Touch panels require a 24 VDC power source for configuration and operation.)	↔
USB-CBL-AB15	Standard 15-ft. (4.6m) USB 2.0 cable, A-type connector to B-type connector, used to connect personal computer to any C-more touch panel for setup and programming. (Note: Touch panels require a 24 VDC power source for configuration and operation.)	↔

C-more Selection Guide & Specifications

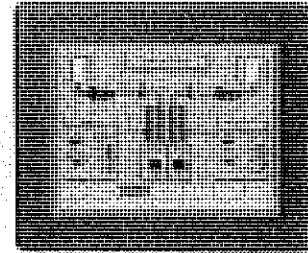
Specification	Model	8" TFT color w/ full features	10" TFT color w/ full features	12" TFT color w/ full features	15" TFT color w/ full features
Part Number		EA7-T8C	EA7-T10C	EA7-T12C	EA7-T15C
					
Price		↔	↔	↔	↔
Display Actual Size and Type		8.4" TFT color	10.4" TFT color	12.1" TFT color	15.0" TFT color
Color Scale		65,536 colors			
Display Viewing Area		6.73" x 5.05" [170.9 mm x 128.2 mm]	8.31" x 6.24" [211.2 mm x 158.4 mm]	9.47" x 7.62" [240.6 mm x 184.5 mm]	11.97" x 8.98" [304.1 mm x 228.1 mm]
Screen Pixels		640 x 480 (VGA)		800 x 600 (SVGA)	1024 x 768 (XGA)
Display Brightness		300 cd/m ² (NITS)	270 cd/m ² (NITS)	260 cd/m ² (NITS)	220 cd/m ² (NITS)
LCD Panel Dot Pitch		0.267 mm x 0.267 mm	0.33 mm x 0.33 mm	0.267 mm x 0.267 mm	0.297 mm x 0.297 mm
Backlight Average Lifetime*		Approximately 50,000 hours			
Backlight User Replaceable		Yes – Correct replacement bulb is dependent on the panel serial no, see C-more Replacement Parts section for complete details			
Touch Panel Type		Analog Resistive (10-bit resolution, 1024 x 1024 touch area)		Analog Resistive (12-bit resolution, 4096 x 4096 touch area)	
CPU Type		32-Bit RISC CPU (400 MHz)		32-Bit RISC CPU (400 MHz) Plus Graphic Accelerator Chip	
Battery		Replaceable battery – ADC Part # D2-BAT-1 (Manufacturer Part # CR2354)			
System Memory		SDRAM 32 MBytes		SDRAM 64 MBytes	
System Flash Memory		FLASH 32 MBytes		FLASH 64 MBytes	
Backup Memory (SRAM)		Control data backup memory (SRAM) 256 KBytes			
Logging Data Memory		CompactFlash Memory Card p/n EA-CF-CARD, industrial grade, high speed (Optional) or USB Pen Drive p/n SDC24-2048-A10 (Optional)			
Number of Screens		Up to 999 – limited by available project memory (10 MBytes)		Up to 999 – limited by available project memory (40 MBytes)	
Realtime Clock		Built into panel (PLC clock is still accessible if available)			
Calendar – Month/Day/Year		Yes - battery backup			
Screen Saver		Yes, backlight turns off after a 30–1500 minute adjustable time, or can be disabled			
Serial PLC Interface		Serial PLC Port: RS-232C/422/485 15-Pin D-sub (female)			
USB Port – Type B		Download/Program – USB Port – type B (ver. 1.2)			
USB Port – Type A		Port for USB device options – type A (ver. 1.2)			
Ethernet Port		Ethernet 10/100 Base-T			
Audio Line Out		Audio Line Out, 1 Volt rms, stereo – requires amplifier and speaker(s)			
CF Card – Slot #1		Optional: CompactFlash Memory Card p/n EA-CF-CARD, industrial grade, high speed, CF slot #1 located on top side of touch panel.			
Expansion Assembly (p/n EA-EXP-DPT)		Optional: Use the CF Card Interface Module p/n EA-CF-IF in the right slot of the Expansion Assembly for installing CF card - Slot #2. The left slot of the Expansion Assembly is for future options.			
Supply Power		24 VDC, -15%, +20% (20.4–28.8 VDC operating range) (Use an AC Power Adapter, p/n EA-AC, to power the touch panel from a 100-240 VAC, 50/60 Hz, power source.)			
Power Consumption		15 W @ 24 VDC	17 W @ 24 VDC	20 W @ 24 VDC	33 W @ 24 VDC
Recommended Input Fuse		3.0 A DC slow blow			
Operating Temperature		0 to 50°C (32 to 122°F) Max surrounding air temperature rating: 50°C			
Storage Temperature		–20 to +60°C (–4 to +140°F)			
Humidity		10–85% RH, non-condensing			
Noise Immunity		Noise voltage: 1000 Vp-p, Pulse width: 1 µs, Rise time: 1 ns			
Withstand Voltage		1000 VDC for 1 minute, between DC power supply input terminal and safety ground			
Insulation Resistance		Over 20 MΩ between DC power supply input terminal and safety ground			
Vibration		IEC61131-2 compliant, 10–57 Hz: 0.075 mm amplitude, 57–150 Hz: 1.0 G; 10 sweep cycles per axis on each of 3 mutually perpendicular axes			
Shock		15 G peak, 11 ms duration, 2 shocks per axis; on 3 mutually perpendicular axes			
Enclosure		IP65 Meets UL Type 4X when mounted correctly. For indoor use only.			
Environment		For use in Pollution Degree 2 Environment			
Agency Approvals		UL, cUL, CE, CSA; UL file: 157382; CSA file: 234884			
Dimensions		8.748" x 10.894" x 2.053" [222.2 mm x 276.7 mm x 52.1 mm]	10.669" x 13.661" x 2.079" [271.0 mm x 347.0 mm x 52.8 mm]	11.024" x 13.366" x 2.075" [280.0 mm x 339.5 mm x 52.7 mm]	13.000" x 16.748" x 2.048" [330.2 mm x 425.4 mm x 52.0 mm]
Weight		2.60 lb. [1,180g]	3.55 lb. [1,610g]	4.59 lb. [2,080g]	7.01 lb. [3,180g]

* NOTE: The backlight average lifetime is defined as the average usage time it takes before the brightness becomes 50% of the initial brightness. The lifetime of the backlight depends on the ambient temperature. The lifetime will decrease under low or high temperature usage.

C-more 12" TFT Color Touch Panel - Full Model

12-inch C-more color TFT touch panel (12.1 inch viewable screen), 64K colors, 800 x 600 pixel SVGA screen resolution, 400 MHz CPU plus Graphic Accelerator chip, 24 VDC (20.4-28.8 VDC operating range), NEMA 4/4X, IP-65 (when mounted correctly; for indoor use only), user replaceable backlight, 50,000 hour half-life. Built-in Ethernet and USB; supports Compact Flash.

Part No. EA7-T12C



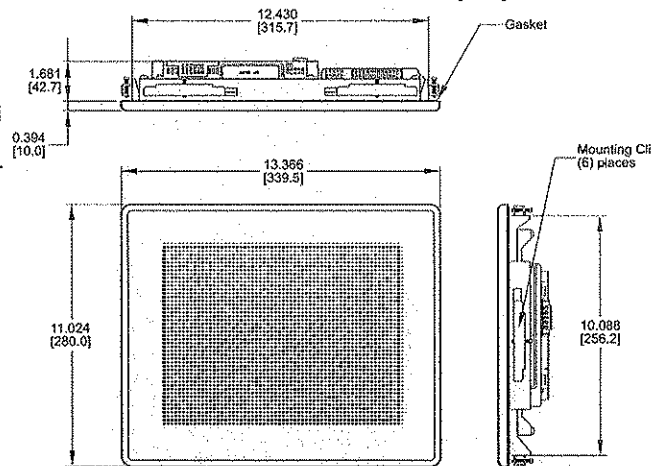
Features

- 12.1" diagonal color TFT (Thin Film Transfer) LCD display with 64K colors
- 800 x 600 pixel resolution
- 260 NITS display brightness
- 50,000 hour average backlight lifetime, user replaceable
- Analog resistive (4096 X 4096) touch screen allowing unlimited touch areas
- USB port B (program/download) and USB port A (USB device options)
- Ethernet 10/100 Base-T port (program/download & PLC comm)
- Remote Internet Access
- Serial PLC interface (RS-232/422/485)
- CompactFlash card slot, built-in
- Expansion assembly (optional) for CompactFlash devices (use with optional CF Card Interface Module)
- 24 VDC powered, 110 VAC power adapter (optional)
- Audio Line Out, stereo - requires amplifier and speaker(s)
- 40 MByte project memory
- Data logging
- 0 to 50°C (32 to 122°F) operating temperature range
- NEMA 4/4X, IP65 compliant when mounted correctly, indoor use only
- Slim design saves panel space
- UL, cUL, CSA & CE agency approvals
- 2-year warranty from date of purchase

Function	Available	Associated Features
Ethernet	Yes	FTP - Email - Web Server
USB	Yes	Data Logging
Compact Flash	Yes	Data Logging/Project
Expansion Assembly	Yes	CF Module & future modules
Audio Out	Yes	Speaker/Amplifier Connection
Ethernet	Yes	Remote access over Internet

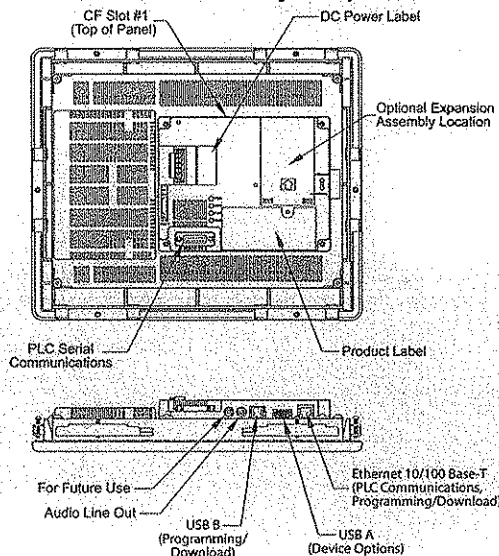
Dimensions

inches / [mm]

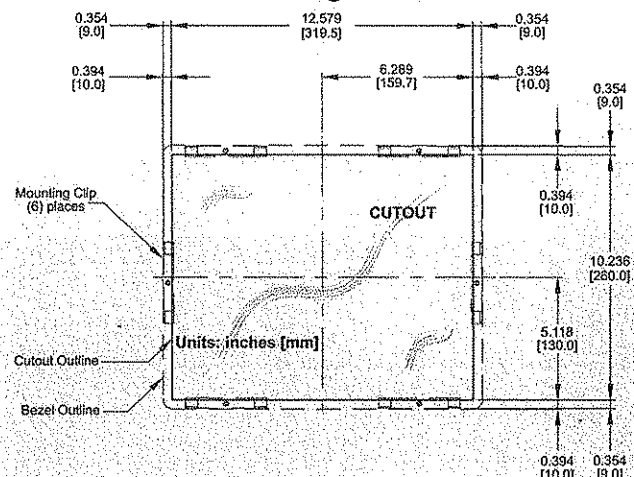


PLC Drivers	
Serial	Avail.
Productivity3000	Yes
AutomationDirect CLICK	Yes
Direct LOGIC K-sequence	Yes
Direct NET	Yes
Modbus (Keyo Addressing)	Yes
Allen-Bradley DF1 Full & Half Duplex	Yes
Allen-Bradley PLC5 DF1	Yes
Allen-Bradley DH-485	Yes
Allen-Bradley DF1 Full & Half Duplex - Tag Based (ControlLogix™ and CompactLogix™)	Yes
Modbus RTU	Yes
Entivity Modbus RTU	Yes
GE SNAPX (90/90, 90/70), Micro 90, VersaMax Micro	Yes
Omron Host Link C200 Adapter C500	Yes
Omron FINS (CJ1, GS1)	Yes
Mitsubishi FX	Yes
Mitsubishi Q02, Q02H, Q06H, Q12H, Q25H	Yes
Mitsubishi Q, QnA Serial	Yes
Siemens PPI (S7-200 CPU)	Yes
Ethernet	
Productivity3000	Yes
Direct LOGIC Ethernet	Yes
Modbus TCP/IP	Yes
Entivity Modbus TCP/IP	Yes
Allen-Bradley EtherNet/IP™	Yes
Server - Generic I/O Messaging™	Yes
Allen-Bradley EtherNet/IP Client - Tag Based (ControlLogix™ and CompactLogix™)	Yes
Allen-Bradley EtherNet/IP Client - MicroLogix 1100 & SLC 5/05 via native Ethernet port; MicroLogix 1000, 1100, 1200, 1400, 1500 & SLC 5-03, 04, 05 via AB ENI Adapter	Yes
Omron FINS	Yes
Mitsubishi Q, QnA Ethernet	Yes
Siemens (S7-200 CPU, S7-300 CPU)	Yes

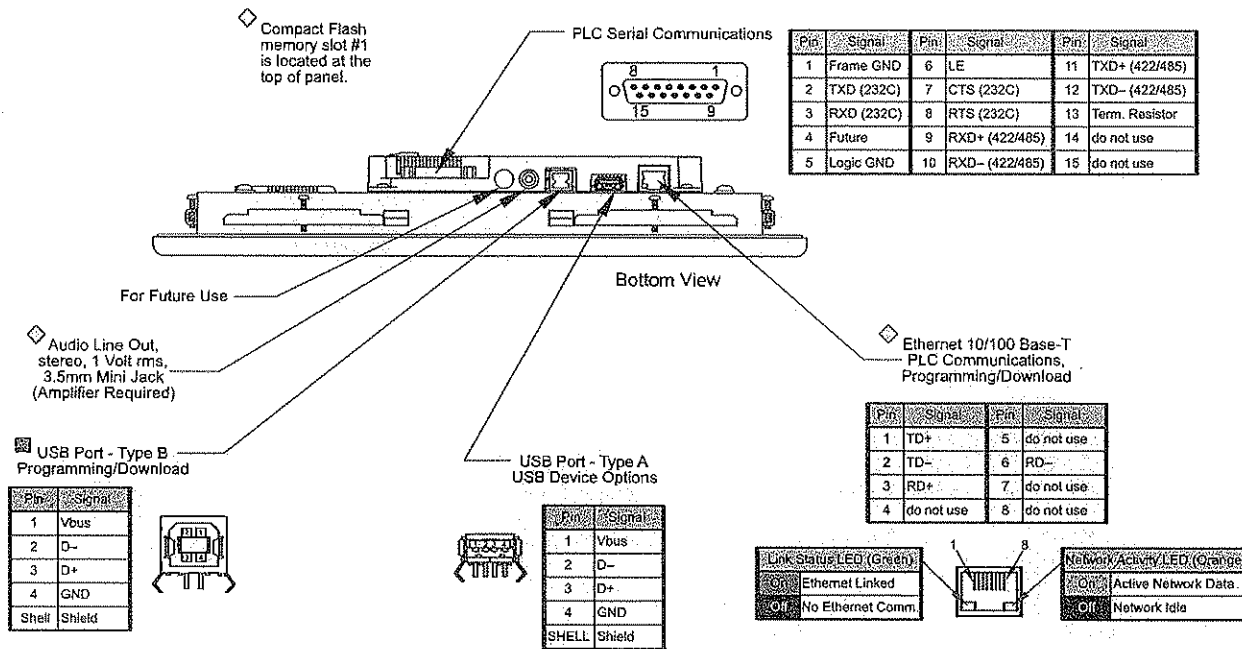
Ports & Memory Expansion



Mounting Cutout



C-more Communication Ports



Note: Device is not available on Base Feature touch panels, part numbers EA7-S6M-R and EA7-T6CL-R.
Note: Use USB Programming Cable, such as p/n USB-CBL-AB15.

Ethernet Port

The Ethernet port has several uses:

- Download program to panel
- Communicate to PLCs/PCs
- Send e-mail
- Access FTP server
- Act as a Web server
- Remote Internet Access

The Ethernet port has an RJ-45 8-wire modular connector with green and orange LEDs.

- The orange LED indicates the Ethernet communication status. It illuminates when there is data activity on the network.
- The green LED indicates link status and illuminates when a link is established.

Ethernet connections:

- Productivity3000
- **DirectLOGIC** Ethernet
- Modbus TCP/IP
- Allen-Bradley EtherNet/IP™ Server - Generic I/O Messaging (ControlLogix™, CompactLogix™, and FlexLogix™)
- Allen-Bradley EtherNet/IP Client - Tag Based (ControlLogix, CompactLogix, and FlexLogix™)
- Allen-Bradley EtherNet/IP Client - MicroLogix 1100 & SLC 5/05, both via native Ethernet port
- Allen-Bradley MicroLogix 1000, 1100, 1200, 1500, SLC 5-03/04/05, all via ENI Adapter
- Entivity Modbus TCP/IP
- Omron Ethernet FINS
- Siemens Ethernet ISO over TCP

Note: The base panels (-R part numbers) do not include an Ethernet port, and do not have these capabilities.

USB Port B

Program C-more via the USB programming port. It's fast and easy, with no baud rate settings, parity, or stop bits to worry about. We stock standard USB cables for your convenience. USB Port B can be used to upload or download projects to and from a PC.

USB Port A

The Universal Serial Bus (USB) Port A is a standard feature for all models and can be used to connect various USB HID (Human Input Device) devices to the panel, such as:

- USB pen drives, (SDCZ4-2048-A10)
- USB keyboards
- USB barcode scanners
- USB card scanners

C-more can log data to the USB pen drive as well as load projects to the panel from the pen drive. You can also back up project files and panel firmware.

Sound Interface (Audio Line Out)

When attached to an amplifier and speaker(s), C-more can play warning sounds or pre-recorded messages such as: "conveyor is jammed". C-more supports WAV type files. The output is stereo.

Serial Port

The serial port is an RS-232, RS-422 or RS-485 female 15-pin D-sub connector. Use this port for serial connections to PLCs. The port supports the following PLC protocols:

All AutomationDirect.com PLCs:
Productivity3000
DirectLOGIC K-sequence
DirectNET
Modbus (Koyo Addressing)
CLICK

Allen Bradley:
DF1 Full & Half Duplex
DF1 Full & Half Duplex - Tag Based
PLC5 DF1
DH485

Modbus RTU
Entivity Modbus RTU
GE SNPX (90/30, 90/70, Micro 90, VersaMax Micro)

Omron:
Host Link (C200 Adapter, C500)
FINS (CJ1, CS1)

Mitsubishi:
Melsec FX
Q/QnA
Siemens PPI (S7-200 CPU)

- AutomationDirect
- Company Information
- Systems Overview
- Programmable Controllers
- Field I/O
- Software
- Control Panels (HMI)
- Drives
- Soft Starters
- Motors & Gearbox
- Stoppers/Servos
- Motor Controls
- Proximity Sensors
- Photo Sensors
- Limit Switches
- Encoders
- Current Sensors
- Pressure Sensors
- Temperature Sensors
- Pushbuttons/Lights
- Process
- Relays/Timers
- Comm
- Terminal Blocks & Wiring
- Power
- Circuit Protection
- Enclosures
- Tools
- Pneumatics
- Safety
- Appendix
- Product Index
- Part # Index

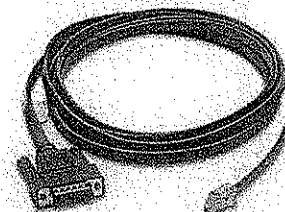
C-more Communication Protocols & Cables

Compatibility Table			
PLC Family	Model	Protocols	
Allen-Bradley	MicroLogix 1000/1100/1200/1400/1500, SLC 5-01/02/03, PLC5	DH485/AIC/AIC+	
	MicroLogix 1000, 1100, 1200 and 1500 SLC 5-03/04/05	DF1 Half Duplex; DF1 Full Duplex	
	ControlLogix™, CompactLogix™, FlexLogix™ PLC-5	DF1 Full Duplex	
	ControlLogix, CompactLogix, FlexLogix - Tag Based	DF1 Half Duplex; DF1 Full Duplex	
	ControlLogix, CompactLogix, FlexLogix - Generic I/O Messaging	EtherNet/IP Server	
	ControlLogix, CompactLogix, FlexLogix - Tag Based	EtherNet/IP Client	
	MicroLogix 1100 & SLC 5/05, both via native Ethernet port		
Modbus-TCP/IP	Modbus TCP/IP devices	Modbus TCP/IP	
GE	90/30, 90/70, Micro 90, VersaMax Micro	SNPX	
Mitsubishi	FX Series	FX Direct	
	Q02, Q02H, Q06H, Q12H, Q25H	Q CPU	
	Q, QnA Serial	QnA Serial	
Omron	Q, QnA Ethernet	QnA Ethernet	
	C200 Adapter, C500	Host Link	
Modicon	CJ1/CS1 Serial, CJ1/CS1 Ethernet	FINS	
	984 CPU, Quantum 113 CPU, AEG Modicon Micro Series 110 CPU: 311-xx, 411-xx, 512-xx, 612-xx	Modbus RTU	
Siemens	S7-200 CPU, RS-485 Serial	PPI	
	S7-200 CPU, S7-300 CPU; Ethernet	Ethernet ISO over TCP	
Productivity3000	Productivity3000 Serial (P3-550)	AutomationDirect P3000 Serial	
	Productivity3000 Ethernet (P3-550)	AutomationDirect P3000 Ethernet	
CLICK	all	AutomationDirect Modbus (CLICK)	
DirectLOGIC	DL05/DL06	all	K-Sequence DirectNET Modbus (Koyo addressing)
		H0-ECOM/H0-ECOM100	DirectLOGIC Ethernet
	DL105	all	K-Sequence
		D2-230	K-Sequence
	DL205	D2-240	K-Sequence DirectNET
		D2-250/D2-250-1/D2-260	K-Sequence DirectNET
		D2-240/D2-250-1/D2-260 Using DCM	Modbus (Koyo addressing)
		H2-ECOM/H2-ECOM100	DirectLOGIC Ethernet
		D3-330/330P (Requires the use of a Data Communications Unit)	DirectNET
	DL305	D3-340	DirectNET
		D3-350	K-Sequence DirectNET Modbus (Koyo addressing)
		D3-350 DCM	DirectNET Modbus (Koyo addressing)
	DL405	D4-430	K-Sequence DirectNET
		D4-440	K-Sequence DirectNET
		D4-450	K-Sequence DirectNET Modbus (Koyo addressing)
		All with DCM	DirectNET Modbus (Koyo addressing)
		H4-ECOM/H4-ECOM100	DirectLOGIC Ethernet
	H2-WinPLC (Think & Do) Live V5.2 or later and Studio any version		Think & Do Modbus RTU (serial port)
	H2-WinPLC (Think & Do) Live V5.5.1 or later and Studio V7.2.1 or later		Think & Do Modbus TCP/IP (Ethernet port)

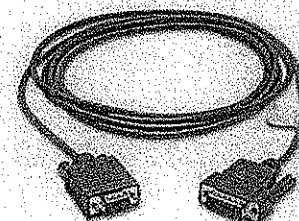
Cable Description	Cable Part Number	Price
Productivity3000 AutomationDirect CLICK, DirectLOGIC PLC RJ-12 port, DL05, DL06, DL105, DL205, D3-350, D4-450 & H2-WinPLC (RS-232C)	EA-2CBL	<-->
DirectLOGIC (VGA Style) 15-pin port, DL06, D2-250 (250-1), D2-260 (RS-232C)	EA-2CBL-1	<-->
DirectLOGIC PLC RJ-11 port, D3-340 (RS-232C)	EA-3CBL	<-->
DirectLOGIC DL405 PLC 15-pin D-sub port, DL405 (RS-232C)	EA-4CBL-1	<-->
DirectLOGIC PLC 25-pin D-sub port, DL405, DL305 DCM and all DCMs (RS-232C)	EA-4CBL-2	<-->
Allen-Bradley MicroLogix 1000, 1100, 1200, 1400 & 1500 (RS-232C)	EA-MLOGIX-CBL	<-->
Allen-Bradley SLC 5-03/04/05 ControlLogix, CompactLogix, FlexLogix, DF1 port (RS-232C)	EA-SLC-232-CBL	<-->
Allen-Bradley PLC-5 DF1 port (RS-232C)	EA-PLC5-232-CBL	<-->
Allen-Bradley SLC 500 DH485 port (RS-485A)	EA-DH485-CBL	<-->
GE 90/30, 90/70, Micro 90, VersaMax Micro 15-pin D-sub port (RS-422A)	EA-90-30-CBL	<-->
MITSUBISHI FX Series 25-pin port (RS-422A)	EA-MITSU-CBL	<-->
MITSUBISHI FX Series 8-pin mini-DIN (RS-422A)	EA-MITSU-CBL-1	<-->
OMRON Host Link C200 Adapter, C500 (RS-232C)	EA-OMRON-CBL	<-->

NOTE: EZTouch serial PLC communication cables are compatible with C-more touch panels.

EA-2CBL



EA-2CBL-1



C-more Computer Programming Connections

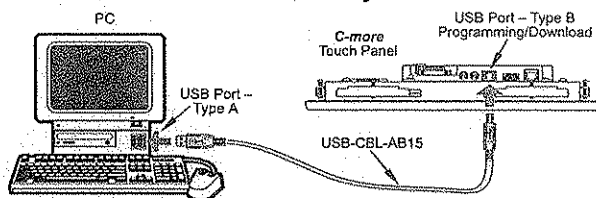
Using the C-more Programming Software for project development, the touch panel can be connected to a PC (personal computer) in one of several ways:

- Connect a USB Programming Cable such as (USB-CBL-AB15) from a USB port type A on the PC to the USB type B programming port on the C-more touch panel. The USB connection is for direct connection only and does not support USB hubs.
- Connect the C-more touch panel to a PC via an Ethernet hub or switch, and CAT5 Ethernet cables (full feature panels only). Multiple panels can be programmed in this configuration.
- Use an Ethernet crossover cable directly between the C-more touch panel's Ethernet port and the PC Ethernet port (full feature panels only).

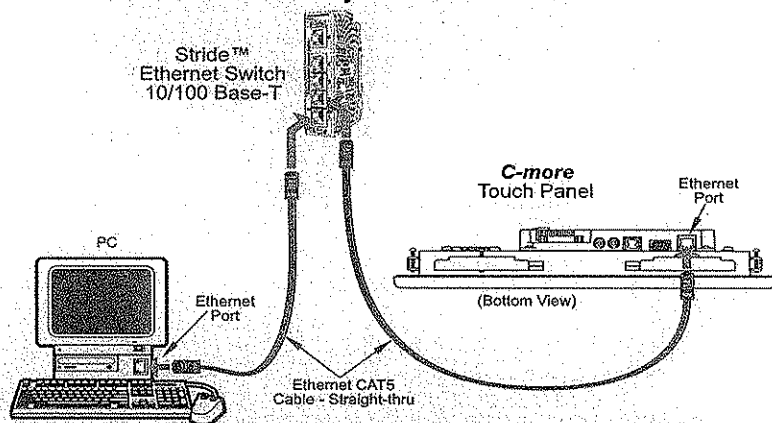
Following are the minimum system requirements for running C-more Programming Software (p/n EA-PGMSW) on a PC:

- Personal Computer with a 333 MHz or higher processor (CPU) clock speed recommended; Intel® Pentium/Celeron family, or AMD® K6/Athlon/Duron family, or compatible processor recommended.
- Keyboard and Mouse or compatible pointing device
- Super VGA color video adapter and monitor with at least 800 x 600 pixels resolution (1024 x 768 pixels recommended) 64K color minimum
- 300 MB free hard-disk space
- 128 MB free RAM (512 MB recommended); 512 MB free RAM (1 GB recommended) for Vista
- CD-ROM or DVD drive for installing software from the CD
- USB port or Ethernet 10/100 Mbps port for project transfer from software to touch panel (Ethernet port not available on -R models)
- Operating System - Windows® Vista, Windows® XP Home / Professional Edition or Windows® 2000 with Service Pack 4.

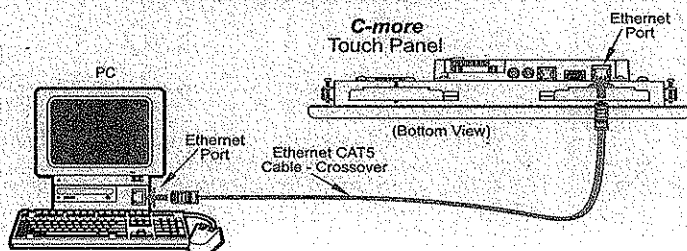
USB Connectivity



Ethernet Connectivity via a Hub or Switch



Ethernet Direct Connection



USB Programming Cable

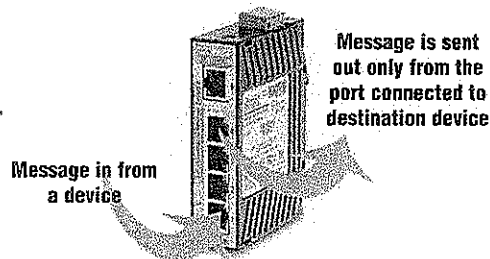


Part No. USB-CBL-AB15



Other lengths available see USB-CBL-AB3, USB-CBL-AB6, USB-CBL-AB10 on page 9-27

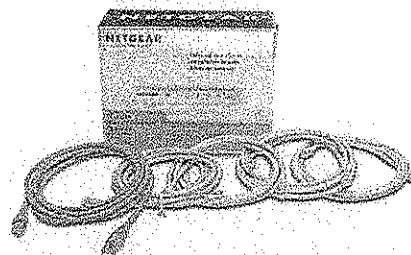
Stride™ Ethernet Switch



Part No. SE-SW5U



Ethernet Configuration Kit



Part No. RT-CNFGKIT

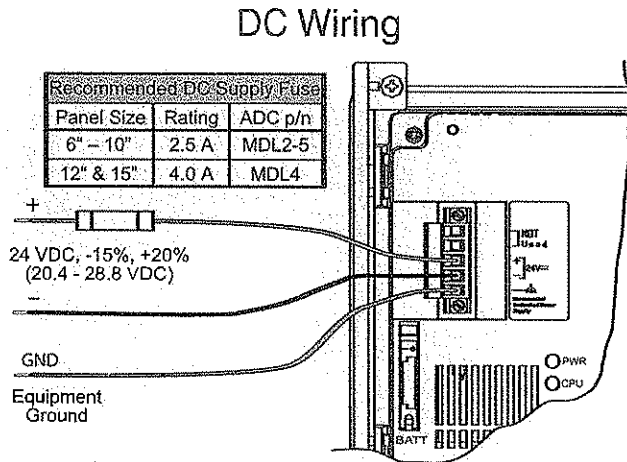


The Ethernet Configuration Kit includes a five-port 10/100 Base-T Ethernet switch, four straight-through cables, and one crossover cable. (The cables are at least five feet in length.) The kit provides a great convenience for configuring systems, demonstration systems or basic control projects using Ethernet.

C-more Power Connection Wiring

Providing Power to the Touch Panel

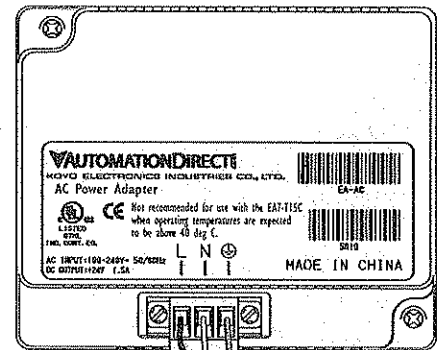
- Connect a dedicated 24 VDC switching power supply rated for a minimum of 1.5 Amps to the DC connector on the rear of the **C-more** touch panel. Connect the ground terminal to a proper equipment ground.
- or, install a **C-more** AC Power Adapter (EA-AC) to the rear of the touch panel and connect an AC voltage source of 100-240 VAC, 50/60Hertz, to its AC connector.
- then, turn on the power source and check the LED status indicators on the rear of the **C-more** touch panel for proper operation.



Recommended Power Supply:
AutomationDirect Part No. PS24-0500

Tightening Torque	
Power supply cable torque	71 - 85 oz-in (0.5 - 0.6 Nm)
Power connector mounting torque	71 - 85 oz-in (0.5 - 0.6 Nm)
Mounting flange screw torque	57 - 71 oz-in (0.4 - 0.5 Nm)

AC Wiring



Recommended AC Supply Fuse
3.0 A time delay, ADC p/n MDL3

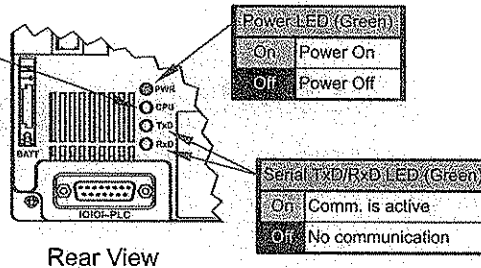
100 - 240 VAC
50/60 Hz

AC Power Adapter
EA-AC

NOTE: The AC/DC Power Adapter is not recommended for use with the EA7-T15C touch panel when operating temperatures are expected to exceed 40 °C (104 °F).

C-more LED Status Indicators

CPU Status LED (Green, Orange & Red)	
Off	Power Off
Green	Normal - CPU Run State
Red	Memory Error
Blinking Green	Operating System not found
Blinking Orange	LCD Backlight Failure
Blinking Red	Power Loss Detection



WARNING: To minimize the risk of potential safety problems, you should follow all applicable local and national codes that regulate the installation and operation of your equipment. These codes vary from area to area and it is your responsibility to determine which codes should be followed, and to verify that the equipment, installation, and operation are in compliance with the latest revision of these codes.

Equipment damage or serious injury to

personnel can result from the failure to follow all applicable codes and standards. We do not guarantee the products described in this publication are suitable for your particular application, nor do we assume any responsibility for your product design, installation, or operation.

If you have any questions concerning the installation or operation of this equipment, or if you need additional information, please call us at 1-800-633-0405 or 770-844-4200.

This publication is based on information that was available at the time it was printed.

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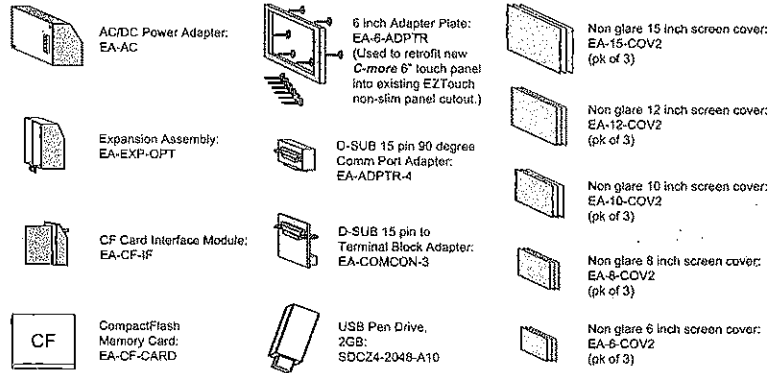
C-more Accessories

Accessories

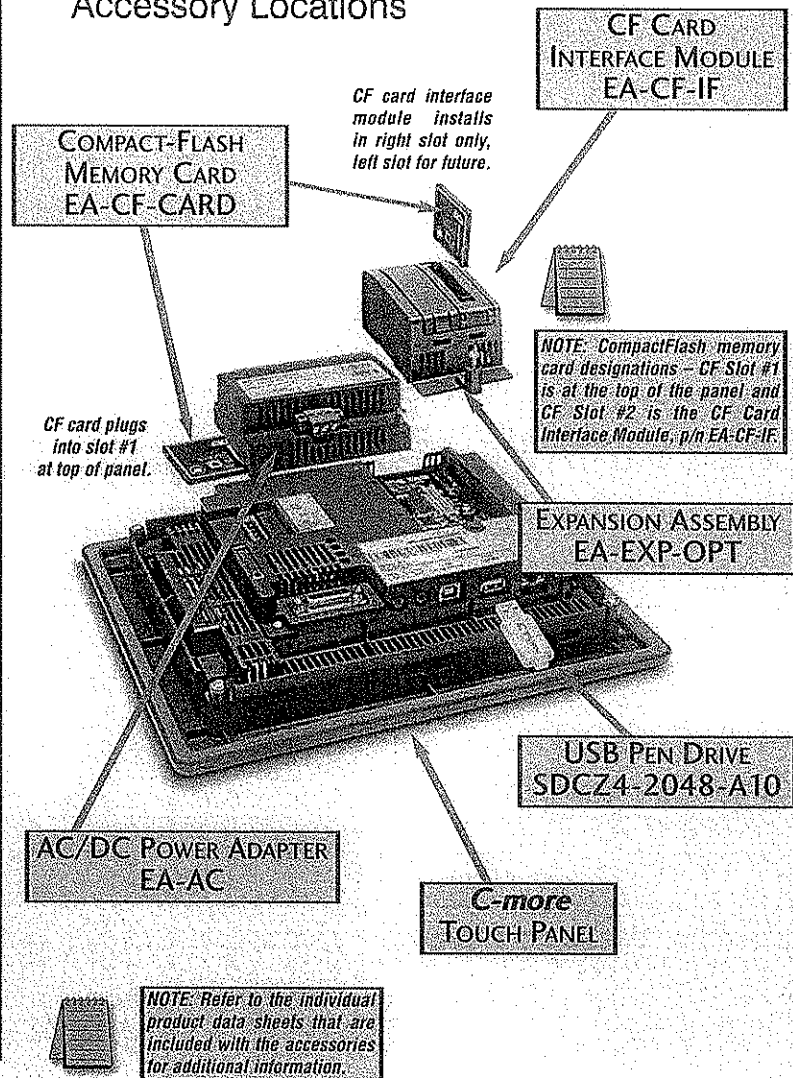
The C-more touch panels can be enhanced with the accessories below:

Part Number	Description	Price
EA-AC	The AC/DC Power Adapter, EA-AC, is for C-more touch panels only, and is powered from a 100-240 VAC, 50/60 Hertz power source. The adapter provides 24 VDC @ 1.5 A. Power Fault features help protect data being logged to CompactFlash during power failures. The C-more panel must have firmware version 1.21 Build 6.16E or higher for proper operation.	↔
EA-EXP-OPT	C-more I/O Module Expansion Assembly, used to hold secondary CompactFlash Adapter (EA-CF-IF) and future option modules	↔
EA-CF-IF	CompactFlash Card Adapter Module, used when adding secondary CompactFlash option to Expansion Assembly. Compatible with EA-CF-CARD Compact-Flash memory card accessory.	↔
EA-CF-CARD	512 MB CompactFlash Memory Option, industrial grade, high speed memory for non-volatile storage.	↔
EA-6-ADPTR	6-inch mounting adapter plate, REQUIRED to mount a 6 inch C-more touch panel into enclosures with legacy wide-bezel EZTouch cutouts. Converts a 8.932 inch x 6.223 inch cutout to 7.522 inch x 5.625 inch cutout.	↔
EA-ADPTR-4	D-SUB 15-pin 90 degree PLC serial communication port adapter (allows a PLC communication cable to be plugged in at a 90 degree angle to reduce panel depth requirements)	↔
EA-COMCON-3	D-SUB 15-pin to 6-terminal PLC serial communication port adapter to allow wire terminal connections for RS-422/485 PLC communication cable.	↔
EA-6-COV2	Non Glare 6 Inch Screen Cover, protective overlay used to protect the touch screen while helping to reduce the glare from external light sources. (pk of 3)	↔
EA-8-COV2	Non Glare 8 Inch Screen Cover, protective overlay used to protect the touch screen while helping to reduce the glare from external light sources. (pk of 3)	↔
EA-10-COV2	Non Glare 10-Inch Screen Cover, protective overlay used to protect the touch screen while helping to reduce the glare from external light sources. (pk of 3)	↔
EA-12-COV2	Non Glare 12-Inch Screen Cover, protective overlay used to protect the touch screen while helping to reduce the glare from external light sources. (pk of 3)	↔
EA-15-COV2	Non Glare 15-Inch Screen Cover, protective overlay used to protect the touch screen while helping to reduce the glare from external light sources. (pk of 3)	↔
SDCZ4-2048-A10	USB Pen Drive, 2GB, SanDisk Cruzer micro Pen Drive. Compatible with Windows 98SE, ME, 2000, XP and Mac OS 9.1.x, OS X 10.1.2, Certified Windows XP and Mac OS X. Recommended for use with the C-more Operator Touch Panels.	↔

Accessories at a glance:



Accessory Locations



- Company Information
- Systems Overview
- Programmable Controllers
- Field I/O
- Software
- Control & other I/O
- Drives
- Soft Starters
- Motors & Gearbox
- Stoppers/Servos
- Motor Controls
- Proximity Sensors
- Photo Sensors
- Limit Switches
- Encoders
- Current Sensors
- Pressure Sensors
- Temperature Sensors
- Pushbuttons/Lights
- Process
- Relays/Timers
- Comm.
- Terminal Blocks & Wiring
- Power
- Circuit Protection
- Enclosures
- Tools
- Pneumatics
- Safety
- Appendix
- Product Index
- Part # Index

C-more Accessories

AC/DC Power Adapter

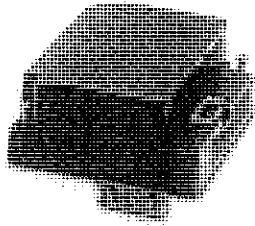
The AC/DC Power Adapter provides dedicated DC power to the panel if using 110 VAC as a power source. The AC/DC Power Adapter provides some features that a normal DC power supply cannot provide. The adapter provides a power loss signal to the touch panel that can be used to track power outages. This

signal also allows the touch panel by way of a timed sequence to stop writing data to CompactFlash memory devices providing a controlled shutdown for increased data logging reliability.

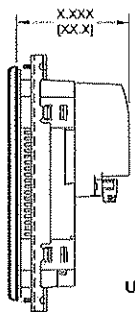
Part No. EA-AC



Dimensions

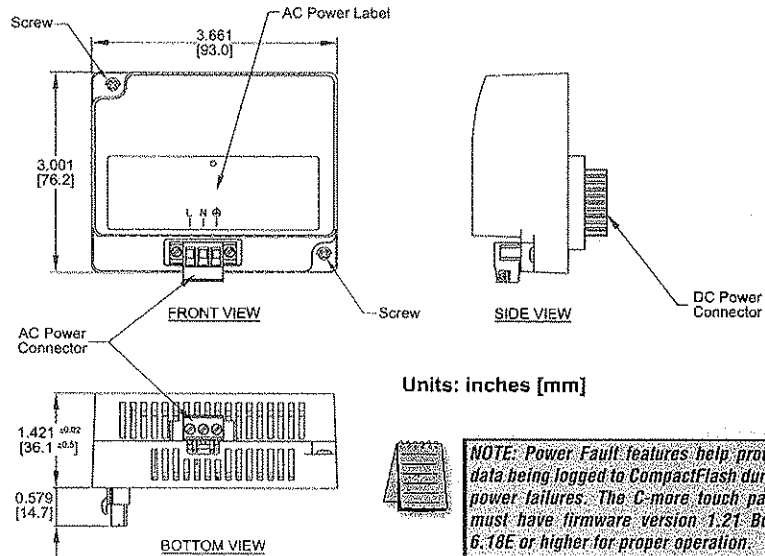


Overall Panel Depth w/ EA-AC Installed



- EA7-S5M-R = 2.921 [74.2]
- EA7-T6CL-R = 2.921 [74.2]
- EA7-S5M = 2.921 [74.2]
- EA7-T6CL = 2.921 [74.2]
- EA7-T8C = 3.157 [80.2]
- EA7-T10C = 3.106 [78.9]
- EA7-T12C = 3.102 [78.8]
- EA7-T15C = 3.075 [78.1]

Units: inches[mm]



Units: inches [mm]



NOTE: Power Fault features help protect data being logged to CompactFlash during power failures. The C-more touch panel must have firmware version 1.21 Build 6.18E or higher for proper operation.



NOTE: The AC/DC Power Adapter is not recommended for use with the EA7-T15C touch panel when operating temperatures are expected to exceed 40 °C [104 °F].

AC/DC Power Adapter Specifications			
Part Number	EA-AC	Static Electricity Discharge Resistance	Compliant with IEC61000-4-2; Contact: 4 kV, Air: 8 kV
Input Voltage & Frequency	100-240 VAC; 50/60 Hertz	Agency Approvals	UL508, cUL, CE, EMC EN61132-2
Voltage Range	85-264 VAC w/ Under Voltage and Over Voltage Shutdown	Environment	For use in pollution degree 2 environment
Permissible Momentary Power Failure	Within 40 ms	Grounding	Ground resistance: less than 100 ohm
Input Power	68 VA or less	Dimensions - inches [mm]	3.00" (H) x 3.66" (W) x 1.42" (D) [76.2 mm x 93.0 mm x 36.1 mm] (Excluding DC Power Connector.)
Operating Temperature Range	0 °C to 50 °C [32 to 122 °F] Maximum surrounding temperature rating, 50 °C (For the EA7-T15C touch panel, maximum temperature is 40 °C, [104 °F] when using the AC/DC Power Adapter.)	Weight	6.13 oz. [175 g]
Storage Temperature Range	-20 to 60 °C [-4 to 140 °F]	Cooling Method	Natural convection when installed on vertically mounted touch panel.
Operating & Storage Humidity	10-85% RH (non-condensing)	Included Parts	AC Power Connector, Data Sheet Insert
Noise Immunity	1000 VAC p-p (Pulse width: 1 µs, rise time: 1 ns), with proper ground connection on AC terminal block.	Removable AC Power Connector	EA-AC-CON or DECA Switchlab MC101-508-03G Secure with (2) captive M2.5 screws, torque to 70 oz-in [0.5 Nm]
Hi-Pot	1000 VAC, 1 minute, with proper ground connection on AC terminal block.	Output Voltage and Ripple	21.6 - 26.4 VDC, Ripple < 100 mV p-p.
Insulation Resistance	500 VDC, 10 M-ohm or above, with proper ground connection on AC terminal block.	Output Current	Maximum 1.5 A
Vibration	Compliant with IEC61131-2	Inrush Current	For 100 VAC: 15 A, 3 ms or less For 240 VAC: 20 A, 3 ms or less
Shock	Pulse shape: Sine half wave; Peak acceleration: 147 m/s² (15 G), X, Y, Z: 3 directions, 2 times each.	Power Fail Detection Voltage	58 VAC ±5%
Thermal Protection	140 °C [284 °F], with autorecovery	Mounting to Touch Panel	Secure with (2) spring loaded captive M3-20 screws, torque to 50 oz-in [0.35 Nm]
Short Circuit Protection	85 VAC: 2.6 A, 100 VAC: 2.8 A, 264 VAC: 3.9 A		

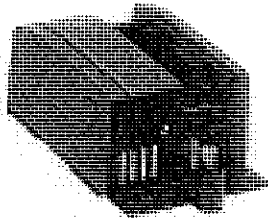
C-more Accessories

Expansion Assembly

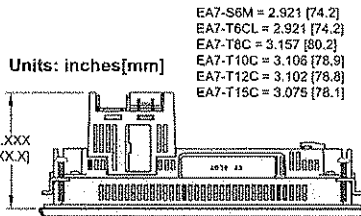
The C-more Expansion Assembly allows installation of the optional CF Card Interface Module (shown below) for CF card use. Although the full featured models have a built-in CompactFlash slot, some users may require additional CF memory for data logging.

The optional Expansion Assembly can be installed on the rear of all but the 6-inch base models. This attachable assembly currently allows installation of an additional CompactFlash card with the use of the CF Card Interface Module.

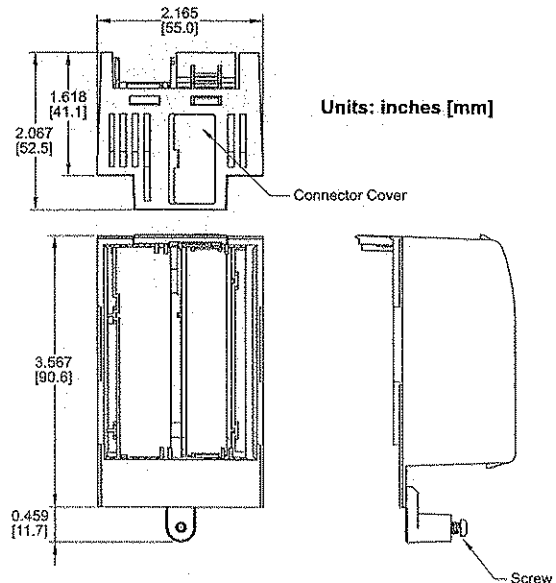
Part No. EA-EXP-OPT



Overall Panel Depth
w/ EA-EXP-OPT
Installed



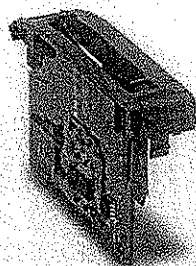
Dimensions



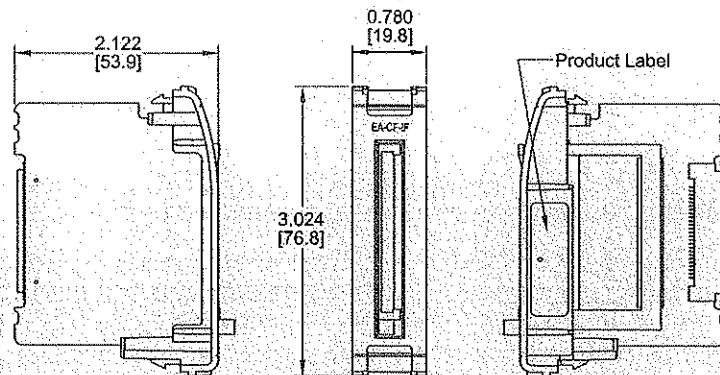
CF Card Interface Module

The C-more CF Card Interface Module is used with the Expansion Assembly to allow use of standard CompactFlash cards, such as the CompactFlash Memory (EA-CF-CARD). The CF card can be used for data logging or as project backup.

Part No. EA-CF-IF



Dimensions



Units: inches [mm]

C-more Accessories

512 MB CompactFlash Memory Card

EA-CF-CARD is a 512 MB high speed industrial grade CompactFlash memory card for non-volatile storage. Its 85 °C operating temperature makes it perfect for data logging in industrial applications (recommended for C-more touch panels). This is a standard "off the shelf" CompactFlash.

**Part No.
EA-CF-CARD**



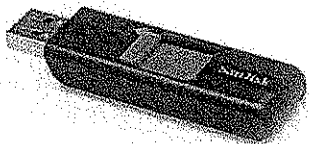
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Specifications/Features:

- CompactFlash™ Compatibility
- W/E Endurance 100,000 cycles
- Data transfer rate: 16 MB/second
- Operating Temp: -13 to 185°F (-25 to 85°C)
- Operating Humidity 85% max, non-condensing
- Storage Temp: -13 to 194 °F (-25 to 90°C)
- Storage Humidity 95% max, non-condensing

USB Pen Drive

**Part No.
SDCZ4-2048-A10**



<--->

The SanDisk Cruzer Micro is an extremely small 2GB USB Flash Drive (UFD) that connects to a USB port. Users can easily store their logging data, project data, key documents and images on a Cruzer Micro and transfer them to another computer with a USB port.

Specifications/Features:

- Dimensions: 7.9 mm x 18.95 mm x 52.2 mm (H x W x L)
- Stylish, metal casing
- Hi-Speed USB 2.0 certified (backwards compatible with all USB 1.1 ports)
- Compatible with Windows 7, Windows 2000, XP, Vista and Mac OS 9.1.x+, OS X v10.1.2+
- Certified Windows XP, Vista and Mac OS X



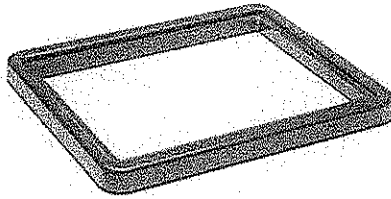
C-more Accessories

6" Adapter Plate

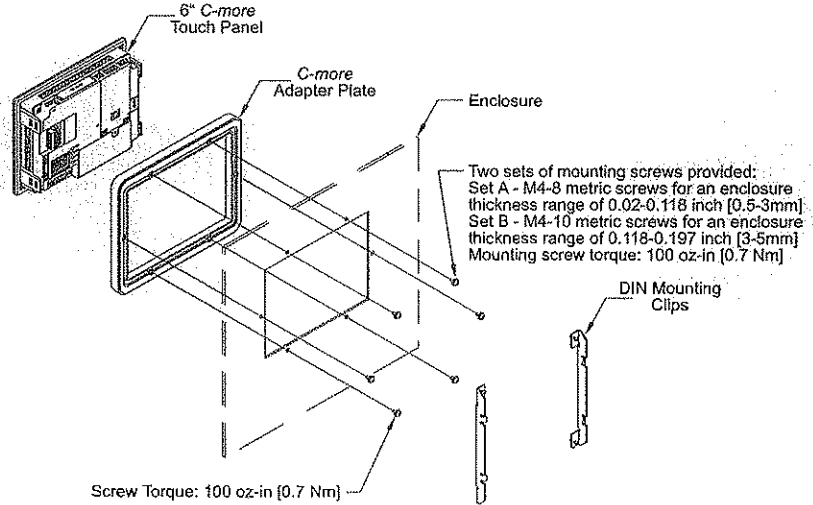
The adapter plate simplifies the retrofit of a new C-more 6" touch panel into an existing cabinet cutout for an EZTouch (units sold by AutomationDirect) 6" wide bezel touch panel, such as our part number EZ-S6C-K, EZ-S6C-F, EZ-S6M-R or EZ-S6M-F.

A NEMA 4/4X gasket is included. Please note that all sizes of the C-more touch panels have the same cutout as similarly sized EZTouch thin bezel (slim) touch panels, allowing quick replacement.

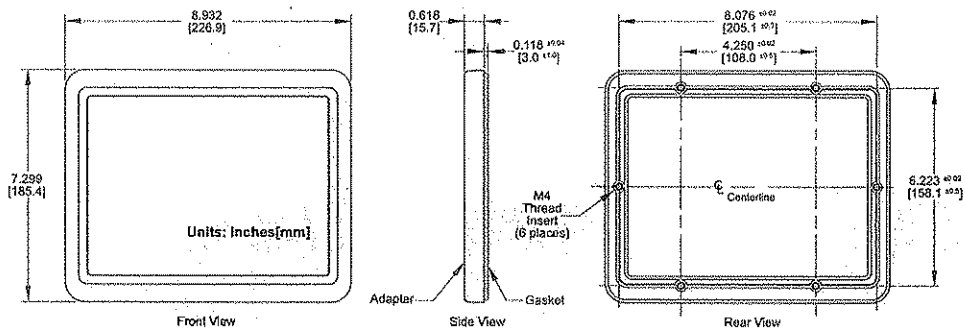
Part No. EA-6-ADPTR



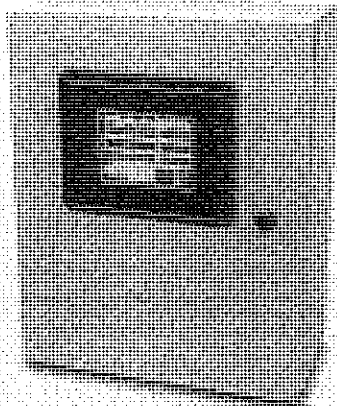
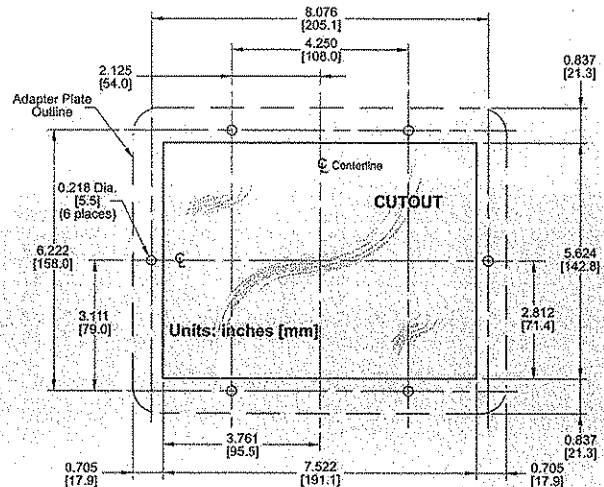
Mounting Details



Dimensions



Cutout Dimensions



- Company Information
- Systems Overview
- Programmable Controllers
- Field I/O
- Software
- C-more & other HMI
- Drives
- Soft Starters
- Motors & Gearbox
- Steppers/Servos
- Motor Controls
- Proximity Sensors
- Photo Sensors
- Limit Switches
- Encoders
- Current Sensors
- Pressure Sensors
- Temperature Sensors
- Pushbuttons/Lights
- Process
- Relays/Timers
- Comm.
- Terminal Blocks & Wiring
- Power
- Circuit Protection
- Enclosures
- Tools
- Pneumatics
- Safety
- Appendix
- Product Index
- Part # Index

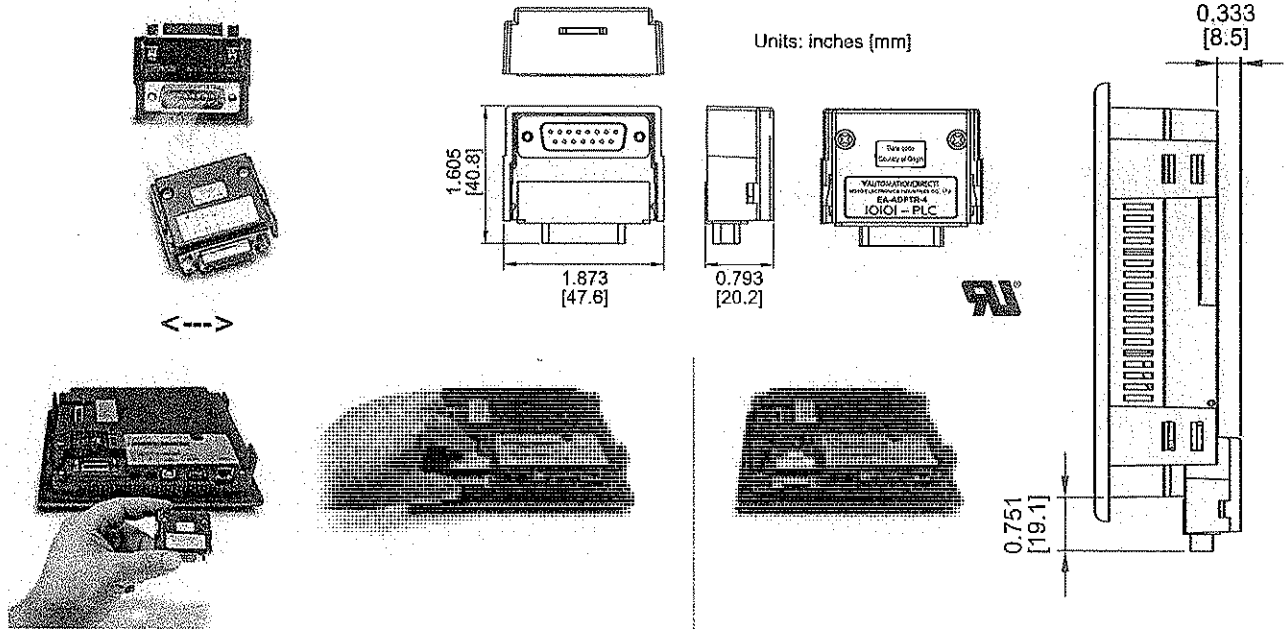
C-more Accessories

D-SUB 15-pin 90-degree Communication Port Adapter

The EA-ADPTR-4 adapter plugs into the 15-pin serial port on the rear of the panel to allow a PLC communication cable to be plugged in at a 90 degree angle to reduce panel depth requirements. 15-pin straight through pin-out. UL Recognized.

Part No.
EA-ADPTR-4

Dimensions

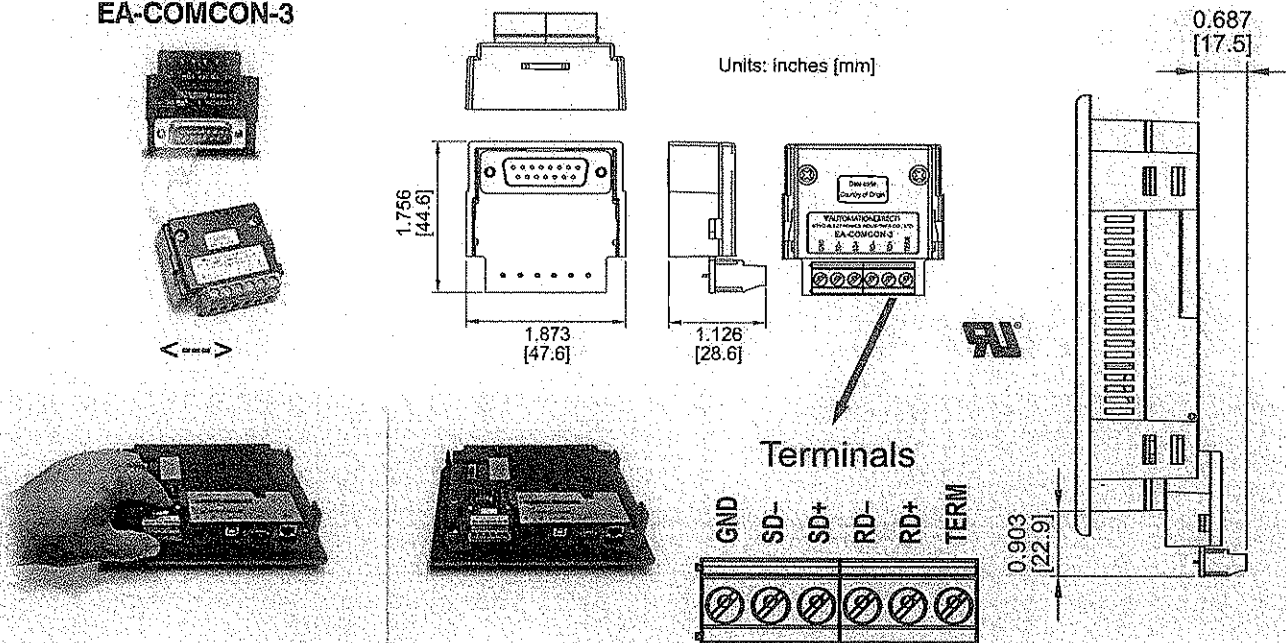


D-SUB 15-pin to Terminal Block Adapter

The EA-COMCON-3 adapter plugs into the 15-pin serial port on the rear of the panel to allow wire terminal connections for an RS-422/RS-485/DH-485 PLC communication cable. UL Recognized.

Part No.
EA-COMCON-3

Dimensions

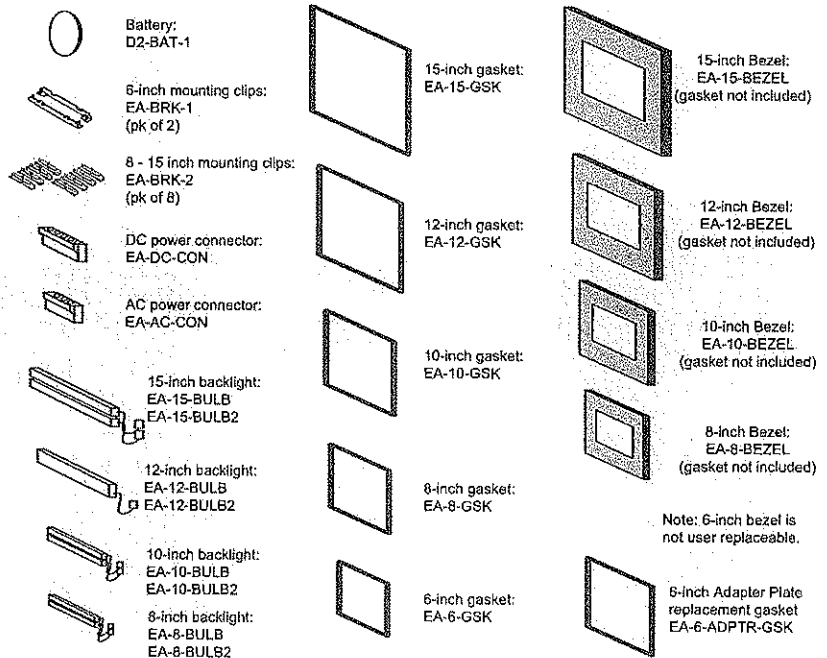


C-more Replacement Parts

The optional replacement parts can be used to replace damaged, worn or lost C-more components.

Part Number	Description	Price
EA-15-BULB* EA-15-BULB2*	15" Panel Backlight Bulb Replacement	<-->
EA-12-BULB* EA-12-BULB2*	12" Panel Backlight Bulb Replacement	<-->
EA-10-BULB* EA-10-BULB2*	10" Panel Backlight Bulb Replacement	<-->
EA-8-BULB* EA-8-BULB2*	8" Panel Backlight Bulb Replacement	<-->
EA-DC-CON	DC Panel Power Connector Replacement	<-->
EA-AC-CON	AC Power Adapter Connector Replacement	<-->
D2-BAT-1	Replacement Battery	<-->
EA-BRK-1	6" Panel Mounting Clip Replacements (2 per pk.)	<-->
EA-BRK-2	8"-15" Panel Mounting Clip Replacements (8 per pk.)	<-->
EA-15-BEZEL	15" Panel Bezel Replacement	<-->
EA-12-BEZEL	12" Panel Bezel Replacement	<-->
EA-10-BEZEL	10" Panel Bezel Replacement	<-->
EA-8-BEZEL	8" Panel Bezel Replacement	<-->
EA-15-GSK	15" Panel Gasket Replacement	<-->
EA-12-GSK	12" Panel Gasket Replacement	<-->
EA-10-GSK	10" Panel Gasket Replacement	<-->
EA-8-GSK	8" Panel Gasket Replacement	<-->
EA-6-GSK	6" Panel Gasket Replacement	<-->
EA-6-ADPTR-GSK	6" Adapter Plate Gasket Replacement	<-->

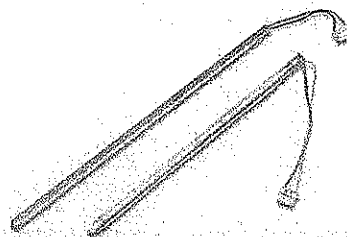
Replacement parts at a glance:



PLEASE REFER TO THE INDIVIDUAL DATA SHEET INSERTS THAT ARE INCLUDED WITH EACH REPLACEMENT PART FOR ADDITIONAL DETAILS.

*C-more Replacement Bulbs		
C-more Model	Bulb Model	C-more Serial Number
EA7-T8C	EA-8-BULB	EA7-T8C+10Z15B020 and older
	EA-8-BULB2	EA7-T8C+10Z15B021 and newer
EA7-T10C	EA-10-BULB	EA7-T10C+10Z11B080 and older
	EA-10-BULB2	EA7-T10C+10Z11B081 and newer
EA7-T12C	EA-12-BULB	EA7-T12C+10Z29B019 and older
	EA-12-BULB2	EA7-T12C+10Z29B020 and newer
EA7-T15C	EA-15-BULB	EA7-T15C+10Z22B120 and older
	EA-15-BULB2	EA7-T15C+10Z22B121 and newer

Part No.
EA-8-BULB, EA-8-BULB2,
EA-10-BULB, EA-10-BULB2,
EA-12-BULB, EA-12-BULB2,
EA-15-BULB, & EA-15-BULB2
see table



Backlight assembly, customer replaceable, for C-more 8", 10", 12" and 15" touch panels. The 8", 10" and 15" touch panels use two bulbs per panel and the 12" touch panels use one bulb per panel. The bulbs are packaged two per box for the 8", 10" and 15" touch panels and one per box for the 12" touch panels.

Serial Number = [Part Number]+[YYMDDFNNN]

Date Code = YYMF

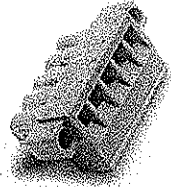
YY: Year (05-99 -- e.g. 05 = 2005)
M: Month (1-9, X, Y, Z -- e.g. X = Oct.)
DD: Day (1-31)
F: Manufacturing Site (0-9, A-Z)
NNN: Sequence number for the date listed (000-999)

C-more Replacement Parts



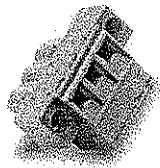
MAINTENANCE AND ACCESSORY INSTRUCTION SHEETS CAN BE VIEWED AND DOWNLOADED ONLINE AT:
[HTTP://WWW.AUTOMATIONDIRECT.COM/STATIC/MANUALS/EAUSERM/EAUSERM.HTML](http://www.automationdirect.com/static/manuals/EAUSERM/EAUSERM.HTML)

DC Power Connector Part No. EA-DC-CON



Replacement 5-terminal DC power connector for C-more touch panels.

AC Power Connector Part No. EA-AC-CON



Replacement 3-terminal AC power connector for C-more touch panel AC Power Adapters.

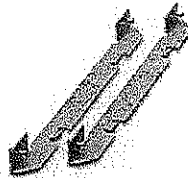
Replacement Battery Part No. D2-BAT-1



Backup Battery (supplied with new panels)
 C-more panels use battery backed RAM to store retentive values for internal tags. This battery will last for up to two years, and is easy to replace. You can even set up an alarm condition, and let C-more remind you when the battery needs replacing. The C-more panels come with the D2-BAT-1 already installed.

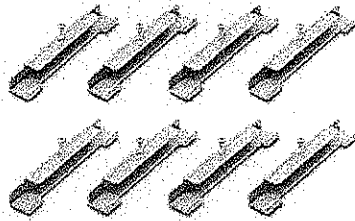
NOTE: The D2-BAT-1 is the same battery used in our DL06, D2-250(-1), D2-260 and D3-350 PLC products.

6" Panel Mounting Clips Part No. EA-BRK-1



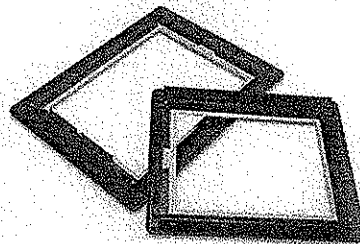
Spare panel mounting clips for 6-inch C-more touch panels. Package of 2 clips with 4 screws.

8"-15" Panel Mounting Clips Part No. EA-BRK-2



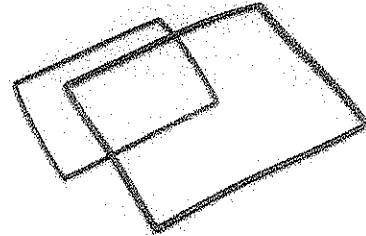
Spare panel mounting clips for the 8-inch through 15-inch C-more touch panels. Package of 8 clips with 8 screws.

Part No. EA-8-BEZEL, EA-10-BEZEL, EA-12-BEZEL and EA-15-BEZEL



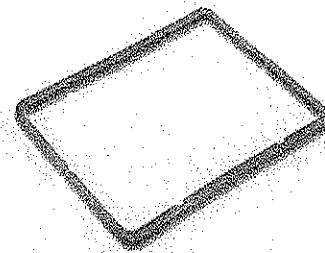
NEMA 4/4X bezel, customer replaceable, for C-more 8", 10", 12" and 15" touch panels. Gasket not included.

Part No. EA-6-GSK, EA-8-GSK, EA-10-GSK, EA-12-GSK and EA-15-GSK



Replacement NEMA 4/4X touch panel gaskets for C-more 6", 8", 10", 12" and 15" touch panels.

Part No. EA-6-ADPTR-GSK



6-inch replacement NEMA 4/4X gasket for the C-more touch panel adapter plate.



CAUTION The battery used in this device may present a risk of fire or chemical burn if mistreated. Do not recharge, disassemble, heat above 100 °C (212 °F) or incinerate. Replace battery with AutomationDirect part number D2-BAT-1 or CR2354 only. Use of another battery may present a risk of fire or explosion. Dispose of used battery properly. Keep away from children.
 Perchlorate Material, special disposal handling may apply.

- Company Information
- Systems Overview
- Programmable Controllers
- Field I/O
- Software
- C-more & Other HMI**
- Drives
- Soft Starters
- Motors & Gearbox
- Steppers/Servos
- Motor Controls
- Proximity Sensors
- Photo Sensors
- Limit Switches
- Encoders
- Current Sensors
- Pressure Sensors
- Temperature Sensors
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- Comm.
- Terminal Blocks & Wiring
- Power
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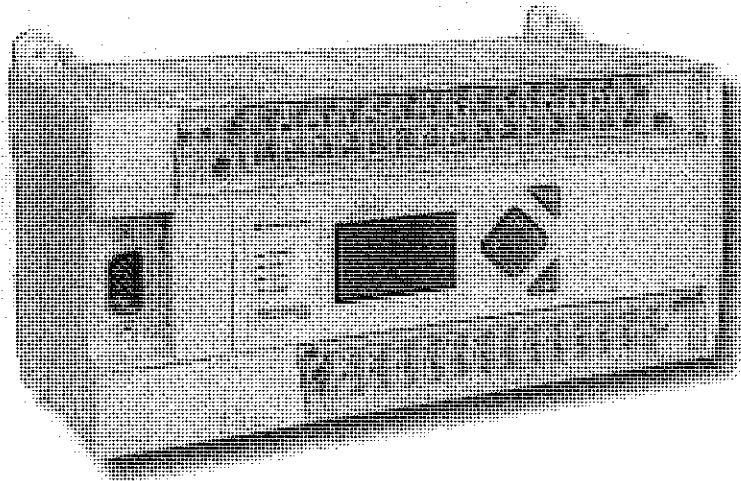
MicroLogix 1400



Small Programmable Logic Controller

Features and Benefits

- Expand your application capabilities with up to 7 expansion I/O modules for a maximum of 256 discrete I/O
- Up to 6 embedded 100 kHz highspeed counters (on controllers with dc inputs)
- 2 Serial ports with DF1/ DH485/ Modbus RTU/DNP3/ASCII protocol support
- Ethernet port provides you with EtherNet/IP, DNP3 over IP and Modbus TCP/IP protocol support as well as web server and email capabilities
- Built-in LCD with backlight allows you to view controller and I/O status, and provides a simple interface for messages, bit / integer monitoring and manipulation



Product Description

The Allen-Bradley® MicroLogix™ 1400 from Rockwell Automation complements the existing MicroLogix family of small programmable logic controllers. MicroLogix 1400 combines the features you demand from MicroLogix 1100, such as EtherNet/IP, online editing, and a built-in LCD, plus provides you with enhanced features, such as: higher I/O count, faster High Speed Counter/PTO and enhanced network capabilities

Take advantage of the built-in LCD with back lighting to set the Ethernet network configuration, display floating point values on a user configurable display, display OEM logos at startup and read or write any binary, integer and long file elements in the data table.

Three embedded communication ports provide you with excellent communications capabilities. MicroLogix 1400 offers an isolated RS232C/RS485 combination port; a non-isolated RS232C port; and an RJ-45 port for 10/100 Mbps EtherNet/IP peer-to-peer messaging, DNP3 over IP and Modbus TCP/IP protocol.

Similar to the rest of the MicroLogix family, MicroLogix 1400 is programmed with RSLogix 500 programming software (Version 8.1 and above) as well as RSLogix-Micro programming software.



Product Specifications

MicroLogix	1766-LB2BWA	1766-LB2AWA	1766-LB2B4B	1766-LB2B4WA	1766-LB2AWWA	1766-LB2B4BA
Input Power	120/240 V AC		24V DC	120/240 V AC		24V DC
Memory	non-volatile battery backed RAM					
User Program / User Data Space	10K / 10K configurable					
Data Logging / Recipe Storage	128 K (without Recipe) / up to 64 K (after subtracting Data Logging)					
Battery Back-up	Yes					
Back-up Memory Module	Yes					
Digital Inputs	(12) Fast 24VDC (8) Normal 24VDC	(20) 120VAC	(12) Fast 24VDC (8) Normal 24VDC	(12) Fast 24VDC (8) Normal 24VDC	(20) 120VAC	(12) Fast 24VDC (8) Normal 24VDC
Digital Outputs	(12) Relay	(12) Relay	(6) Relay (3) Fast DC (3) Normal DC	(12) Relay	(12) Relay	(6) Relay (3) Fast DC (3) Normal DC
Analog Inputs / Outputs	None			(4) Voltage Inputs / (2) Voltage Outputs		
Serial Ports	(1) RS232C/RS485*, (1) RS232C**					
Serial Protocols	DF1 Full Duplex, DF1 Half Duplex Master/Slave, DF1 Radio Modem, DH-485, Modbus RTU Master/Slave, ASCII, DNP 3 Slave					
Ethernet Ports	(1) 10/100 EtherNet/IP port					
Ethernet Protocols	EtherNet/IP messaging, DNP3 over IP and Modbus TCP/IP					
Trim Potentiometers	2 Digital					
High-Speed Inputs	Up to 6 channels @ 100 kHz	N/A	Up to 6 channels @ 100 kHz	Up to 6 channels @ 100 kHz	N/A	Up to 6 channels @ 100 kHz
Real Time Clock	Yes, embedded					
PID	Yes (limited by loop and stack memory)					
PWM / PTO	N/A		3 channel PTO (100kHz)\PWM (40kHz)	N/A		3 channel PTO (100kHz)\PWM (40kHz)
Embedded LCD	Yes					
Floating Point Math	Yes					
Online Editing	Yes					
Operating Temperature	-20°C...+60°C					
Storage Temperature	-40°C (or -30°C)...+85°C					

* Isolated, RS232/RS485 combo port. Same as MicroLogix 1100 Comm 0

** Non-isolated RS232, standard D-sub connector.



Rockwell Automation is an official ENERGY STAR® Industrial Service and Product Provider. It has proven it provides energy efficiency services and/or products to commercial buildings and industrial manufacturing plants in the United States by collaborating with an ENERGY STAR Industrial Partner to submit a teaming profile that outlines the scope and resulting savings from energy efficiency-driven projects. For more information, visit ENERGY STAR for Industry at www.energystar.gov/index.cfm?c=industry.bus_industry

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www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

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Europe/Middle East/Africa: Rockwell Automation NV, Pegasus Park, De Kleedlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600; Fax: (32) 2 663 0640

Asia Pacific: Rockwell Automation, Level 14, Core F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

SEP 02 2010 13:33 CORCOCHEMICALS 2152950178 P.2

MATERIAL SAFETY DATA SHEET



CORCO CHEMICAL CORPORATION • TYBURN ROAD & CEDAR LANE • FAIRLESS HILLS, PA. 19030 • 215/295-5006
 Manufacturers of Reagent and Electronic Chemicals

IDENTITY (As Used on Label and List) Acetone #1001
 Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Section I

Manufacturer's Name: Corco Chemical Corporation
 Address (Number, Street, City, State, and ZIP Code): Tyburn Rd. & Cedar Lane, Fairless Hills, Penna. 19030
 Emergency Telephone Number: (215) 295-5007
 Telephone Number for Information:
 Date Prepared: 1/18/00 (5/91-4/96)
 Signature of Preparer (optional): *[Handwritten Signature]*

Section II — Hazardous Ingredients/Identify Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
Acetone, CH ₃ COCH ₃	1000ppm 2400 mg/m ³	750 ppm 1780 mg/m ³	IDLH 20,000ppm	

Common Names

Dimethyl Ketone
 Ketone Propane
 2-Propanone
 Methyl Ketone
 Pyroacetic Acid
 Beta-Ketopropane
 Propanone
 Indexed as:
 CAS 67-64-1, RTECS AL3150000
 UN 1090
 NFPA 130
 DOT Flammable Liquid

Section III — Physical/Chemical Characteristics

Boiling Point (56°C)	133°F	Specific Gravity (H ₂ O = 1) @ 15°C	0.7972
Vapor Pressure (mm Hg.) @ 20°C	180.0	Melting Point -94.6°C	-138.3°F
Vapor Density (AIR = 1)	2.0	Evaporation Rate (Butyl Acetate = 1)	14.48

Solubility in Water

Miscible

Appearance and Odor

Colorless Liquid, Mint like odor.

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used) O° F, (-17.7°C) C. C.	Flammable Limits	LEL 2.6%	UEL 12.8%
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Extinguishing Media

Dry chemical, CO₂, Water Spray, Alcohol foam.

Special Fire Fighting Procedures

Wear self-contained breathing apparatus and full protective clothing. Cool flame exposed containers with water until well after fire is out. Autoignition @ 869°F.

Unusual Fire and Explosion Hazards

Vapor explosion hazard. Vapors may travel to source of ignition and flash back. Container may explode in heat of fire. Stay upwind, out of low areas.

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Section V — Reactivity Data

Stability	Unstable		Conditions to Avoid
	Stable	X	Avoid Heat, Spark, Flame

Incompatibility (Materials to Avoid) Oxidizers, Acid, Hydrogen Peroxide, Chromic Anhydride, Chloroform, Activated Carbon, Nitric plus Acetic Acid, Oleum.
 Hazardous Decomposition or Byproducts

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	Heat, Spark, Flame

Section VI — Health Hazard Data

Route(s) of Entry	Inhalation? yes	Skin? yes	Ingestion? yes
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Health Hazards (Acute and Chronic)
 Neurotic at high concentration. Industry reports no injurious effects other than skin defatting and headache at prolonged inhalation.

Carcinogenicity	NTP? not reported	IARC Monographs? not reported	OSHA Regulated? not as carcinogen
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Signs and Symptoms of Exposure
 Irritation of Eyes, Nose and throat, Headaches, Dizziness and Dermatitis.

Medical Conditions
 Generally Aggravated by Exposure

Skin and Respiratory conditions.
 Emergency and First Aid Procedures
 Eyes, Skin - immediate water flush. Inhalation - remove to fresh air.
 Ingestion - Call Physician!! if conscious induce vomit.

Section VII — Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled Eliminate ignition sources. Wear proper protective equipment. Use water spray to reduce vapors. Take up with non-combustible absorbent material and containerize for later disposal.

Waste Disposal Method
 To be performed in compliance with all current Local, State and Federal regulations.

Precautions to Be Taken in Handling and Storing
 Do not get liquid or vapor in Eyes, on Skin, on Clothing. Avoid breathing vapor.
 Keep away from Heat, Spark, Flame.

Other Precautions
 Observe all label precautions when handling "Empty" containers and possible residue therein.

Section VIII — Control Measures

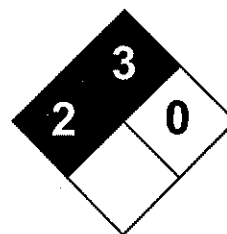
Respiratory Protection (Specify Type)
 Organic canister mask or supplied air, @ 1000 ppm

Ventilation	Local Exhaust	Recommended	Special
	Mechanical (General)	Recommended	Other

Protective Gloves Rubber Eye Protection Full face shield, splash Goggles.

Other Protective Clothing or Equipment
 Chemical resistant clothing, Eye Wash, Safety Shower.

Work/Hygiene Practices
 Work Safely. Respect the material. Wash after handling.



Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet Toluene MSDS

Section 1: Chemical Product and Company Identification

Product Name: Toluene

Catalog Codes: SLT2857, SLT3277

CAS#: 108-88-3

RTECS: XS5250000

TSCA: TSCA 8(b) inventory: Toluene

CI#: Not available.

Synonym: Toluol, Tolu-Sol; Methylbenzene; Methacide; Phenylmethane; Methylbenzol

Chemical Name: Toluene

Chemical Formula: C6-H5-CH3 or C7-H8

Contact Information:

Sciencelab.com, Inc.

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call:

1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Toluene	108-88-3	100

Toxicological Data on Ingredients: Toluene: ORAL (LD50): Acute: 636 mg/kg [Rat]. DERMAL (LD50): Acute: 14100 mg/kg [Rabbit]. VAPOR (LC50): Acute: 49000 mg/m 4 hours [Rat]. 440 ppm 24 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:

Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC.

MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, kidneys, the nervous system, liver, brain, central nervous system (CNS).

Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek medical attention.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 480°C (896°F)

Flash Points: CLOSED CUP: 4.4444°C (40°F). (Setaflash) OPEN CUP: 16°C (60.8°F).

Flammable Limits: LOWER: 1.1% UPPER: 7.1%

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances:

Flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:

Flammable liquid, insoluble in water. **SMALL FIRE:** Use DRY chemical powder. **LARGE FIRE:** Use water spray or fog.

Special Remarks on Fire Hazards: Not available.

Special Remarks on Explosion Hazards:

Toluene forms explosive reaction with 1,3-dichloro-5,5-dimethyl-2,4-imidazolididione; dinitrogen tetroxide; concentrated nitric acid, sulfuric acid + nitric acid; N₂O₄; AgClO₄; BrF₃; Uranium hexafluoride; sulfur dichloride. Also forms an explosive mixture with tetranitromethane.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:

Toxic flammable liquid, insoluble or very slightly soluble in water. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage**Precautions:**

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents.

Storage:

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection**Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 200 STEL: 500 CEIL: 300 (ppm) from OSHA (PEL) [United States] TWA: 50 (ppm) from ACGIH (TLV) [United States] SKIN TWA: 100 STEL: 150 from NIOSH [United States] TWA: 375 STEL: 560 (mg/m³) from NIOSH [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Sweet, pungent, Benzene-like.

Taste: Not available.

Molecular Weight: 92.14 g/mole

Color: Colorless.

pH (1% soln/water): Not applicable.

Boiling Point: 110.6°C (231.1°F)

Melting Point: -95°C (-139°F)

Critical Temperature: 318.6°C (605.5°F)

Specific Gravity: 0.8636 (Water = 1)

Vapor Pressure: 3.8 kPa (@ 25°C)

Vapor Density: 3.1 (Air = 1)

Volatility: Not available.

Odor Threshold: 1.6 ppm

Water/Oil Dist. Coeff.: The product is more soluble in oil; $\log(\text{oil/water}) = 2.7$

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

Solubility:

Soluble in diethyl ether, acetone. Practically insoluble in cold water. Soluble in ethanol, benzene, chloroform, glacial acetic acid, carbon disulfide. Solubility in water: 0.561 g/l @ 25 deg. C.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources (flames, sparks, static), incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:

Incompatible with strong oxidizers, silver perchlorate, sodium difluoride, Tetranitromethane, Uranium Hexafluoride. Frozen Bromine Trifluoride reacts violently with Toluene at -80 deg. C. Reacts chemically with nitrogen oxides, or halogens to form nitrotoluene, nitrobenzene, and nitrophenol and halogenated products, respectively.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 636 mg/kg [Rat]. Acute dermal toxicity (LD50): 14100 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 440 24 hours [Mouse].

Chronic Effects on Humans:

CARCINOGENIC EFFECTS: A4 (Not classifiable for human or animal.) by ACGIH, 3 (Not classifiable for human.) by IARC. May cause damage to the following organs: blood, kidneys, the nervous system, liver, brain, central nervous system (CNS).

Other Toxic Effects on Humans:

Hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals:

Lowest Published Lethal Dose: LDL [Human] - Route: Oral; Dose: 50 mg/kg LCL [Rabbit] - Route: Inhalation; Dose: 55000 ppm/40min

Special Remarks on Chronic Effects on Humans:

Detected in maternal milk in human. Passes through the placental barrier in human. Embryotoxic and/or foetotoxic in animal. May cause adverse reproductive effects and birth defects (teratogenic). May affect genetic material (mutagenic)

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Causes mild to moderate skin irritation. It can be absorbed to some extent through the skin. Eyes: Causes mild to moderate eye irritation with a burning sensation. Splash contact with eyes also causes conjunctivitis, blepharospasm, corneal edema, corneal abrasions. This usually resolves in 2 days. Inhalation: Inhalation of vapor may cause respiratory tract irritation causing coughing and wheezing, and nasal discharge. Inhalation of high concentrations may affect behavior and cause central nervous system effects characterized by nausea, headache, dizziness, tremors, restlessness, lightheadedness, exhilaration, memory loss, insomnia, impaired reaction time, drowsiness, ataxia, hallucinations, somnolence, muscle contraction or spasticity, unconsciousness and coma. Inhalation of high concentration of vapor may also affect the cardiovascular system (rapid heart beat, heart palpitations, increased or decreased blood pressure, dysrhythmia,), respiration (acute pulmonary edema, respiratory depression, apnea, asphyxia), cause vision disturbances and dilated pupils, and cause loss of appetite. Ingestion: Aspiration hazard. Aspiration of Toluene into the lungs may cause chemical pneumonitis. May cause irritation of the digestive tract with nausea, vomiting, pain. May have effects similar to that of acute inhalation. Chronic Potential Health Effects: Inhalation and Ingestion: Prolonged or repeated exposure via inhalation may cause central nervous system and cardiovascular symptoms similar to that of acute inhalation and ingestion as well liver damage/failure, kidney damage/failure (with hematuria, proteinuria, oliguria, renal tubular acidosis), brain damage, weight loss, blood (pigmented or nucleated red blood cells, changes in white blood cell count), bone marrow changes, electrolyte imbalances (Hypokalemia, Hypophosphatemia), severe, muscle weakness and Rhabdomyolysis. Skin: Repeated or prolonged skin contact may cause defatting dermatitis.

Section 12: Ecological Information

Ecotoxicity:

Ecotoxicity in water (LC50): 313 mg/l 48 hours [Daphnia (daphnia)]. 17 mg/l 24 hours [Fish (Blue Gill)]. 13 mg/l 96 hours [Fish (Blue Gill)]. 56 mg/l 24 hours [Fish (Fathead minnow)]. 34 mg/l 96 hours [Fish (Fathead minnow)]. 56.8 ppm any hours [Fish (Goldfish)].

BOD5 and COD: Not available.

Products of Biodegradation:

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Toluene UNNA: 1294 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Toluene California prop. 65 (no significant risk level): Toluene: 7 mg/day (value) California prop. 65 (acceptable daily intake level): Toluene: 7 mg/day (value) California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Toluene Connecticut hazardous material survey.: Toluene Illinois

toxic substances disclosure to employee act: Toluene Illinois chemical safety act: Toluene New York release reporting list: Toluene Rhode Island RTK hazardous substances: Toluene Pennsylvania RTK: Toluene Florida: Toluene Minnesota: Toluene Michigan critical material: Toluene Massachusetts RTK: Toluene Massachusetts spill list: Toluene New Jersey: Toluene New Jersey spill list: Toluene Louisiana spill reporting: Toluene California Director's List of Hazardous Substances.: Toluene TSCA 8(b) inventory: Toluene TSCA 8(d) H and S data reporting: Toluene: Effective date: 10/04/82; Sunset Date: 10/0/92 SARA 313 toxic chemical notification and release reporting: Toluene CERCLA: Hazardous substances.: Toluene: 1000 lbs. (453.6 kg)

Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC):

R11- Highly flammable. R20- Harmful by inhalation. S16- Keep away from sources of ignition - No smoking. S25- Avoid contact with eyes. S29- Do not empty into drains. S33- Take precautionary measures against static discharges.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 2

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/10/2005 08:30 PM

Last Updated: 06/09/2012 12:00 PM

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XYLENE
69917

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Ashland	Regulatory Information Number	1-800-325-3751
P.O. Box 2219	Telephone	614-790-3333
Columbus, OH 43216	Emergency telephone	1-800-ASHLAND (1-800-274-5263)

Product name XYLENE

Product code 69917
Product Use Description No data

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid,, Colorless

WARNING! FLAMMABLE LIQUID AND VAPOR. MAY AFFECT THE CENTRAL NERVOUS SYSTEM CAUSING DIZZINESS, HEADACHE OR NAUSEA. MAY BE HARMFUL IF INHALED. HARMFUL IF SWALLOWED. MAY CAUSE SKIN AND RESPIRATORY TRACT IRRITATION. PROLONGED OR REPEATED CONTACT MAY DRY SKIN AND CAUSE DERMATITIS AND BURNS.

Potential Health Effects

Exposure routes

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

Eye contact

May cause mild eye irritation. Symptoms include stinging, tearing, and redness. Additional symptoms of eye exposure may include: blurred vision

Skin contact

Can cause skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, and drying and cracking of skin, burns and other skin damage. Additional symptoms of skin contact may include: Blistering Passage of this material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use.

XYLENE
69917

Ingestion

Swallowing this material may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

Inhalation

Breathing of vapor or mist is possible. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: Skin, lung (for example, asthma-like conditions), kidney, auditory system, Individuals with preexisting heart disorders maybe more susceptible to arrhythmias (irregular heartbeats) if exposed to high concentrations of this material.

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), central nervous system excitation (giddiness, liveliness, light-headed feeling) followed by central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness) and other central nervous system effects, effects on memory, respiratory depression (slowing of the breathing rate), Shortness of breath, Lack of coordination, confusion, irregular heartbeat, coma

Target Organs

Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: mild, reversible liver effects, cardiac sensitization, kidney damage, effects on hearing

Carcinogenicity

Ethylbenzene has been shown to cause cancer in laboratory animals. The relevance of this finding to humans is uncertain. The International Agency for Research on Cancer (IARC) has classified ethylbenzene as a possible human carcinogen. Ethylbenzene has been shown to cause cancer in laboratory animals. The relevance of this finding to humans is uncertain. The International Agency for Research on Cancer (IARC) has classified ethylbenzene as a possible human carcinogen.

Reproductive hazard

This material (or a component) may be harmful to the human fetus based on positive test results with laboratory animals. This material (or a component) may be harmful to the human fetus based on

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positive test results with laboratory animals., This material (or a component) has been shown to cause harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	CAS-No.	Concentration
XYLENE	1330-20-7	>=70-<80%
ETHYL BENZENE	100-41-4	>=20-<30%

4. FIRST AID MEASURES

Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Skin

Remove contaminated clothing. Flush exposed area with large amounts of water. If skin is damaged, seek immediate medical attention. If skin is not damaged and symptoms persist, seek medical attention. Launder clothing before reuse.

Ingestion

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Notes to physician

Hazards: Inhalation of high concentrations of this material, as could occur in enclosed spaces or during deliberate abuse, may be associated with cardiac arrhythmias. Sympathomimetic drugs may initiate cardiac arrhythmias in persons exposed to this material. This material is an aspiration hazard.

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Potential danger from aspiration must be weighed against possible oral toxicity (See Section 2 - Swallowing) when deciding whether to induce vomiting.

Treatment: No information available.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Dry chemical, Foam, Carbon dioxide (CO2)

Hazardous combustion products

carbon dioxide and carbon monoxide, Hydrocarbons

Precautions for fire-fighting

Material is volatile and readily gives off vapors which may travel along the ground or be moved by ventilation and ignited by pilot lights, flames, sparks, heaters, smoking, electric motors, static discharge or other ignition sources at locations near the material handling point. Never use welding or cutting torch on or near drum (even empty) because product (even just residue) can ignite explosively. Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA).

NFPA Flammable and Combustible Liquids Classification

Flammable Liquid Class IC

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

For personal protection see section 8. Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source. Prevent from entering drains, sewers, streams or other bodies of water. Prevent from spreading. If runoff occurs, notify authorities as required. Pump or vacuum transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for disposal.

Environmental precautions

Prevent run-off to sewers, streams or other bodies of water. If run-off occurs, notify proper authorities as required, that a spill has occurred.

Methods for cleaning up

Absorb liquid on vermiculite, floor absorbent or other absorbent material.

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7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association document NFPA 77. Hydrocarbon solvents are basically non-conductors of electricity and can become electrostatically charged during mixing, filtering or pumping at high flow rates. If this charge reaches a sufficiently high level, sparks can form that may ignite the vapors of flammable liquids. Warning. Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into vacuum equipment, may result in ignitions without the presence of obvious ignition sources. Published "autoignition" or "ignition" temperature values cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions. Any use of this product in elevated temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions.

Storage

Store in a cool, dry, ventilated area away from sources of heat, moisture, and incompatible substances.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

XYLENE		1330-20-7
ACGIH	time weighted average	100 ppm
ACGIH	Short term exposure limit	150 ppm
OSHA Z1	Permissible exposure limit	100 ppm
OSHA Z1	Permissible exposure limit	435 mg/m3
NIOSH	Recommended exposure limit (REL):	100 ppm
NIOSH	Recommended exposure limit (REL):	435 mg/m3
NIOSH	Short term exposure limit	150 ppm
NIOSH	Short term exposure limit	655 mg/m3
ETHYL BENZENE		100-41-4

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ACGIH	time weighted average	100 ppm
ACGIH	Short term exposure limit	125 ppm
NIOSH	Recommended exposure limit (REL):	100 ppm
NIOSH	Recommended exposure limit (REL):	435 mg/m3
NIOSH	Short term exposure limit	125 ppm
NIOSH	Short term exposure limit	545 mg/m3
OSHA Z1	Permissible exposure limit	100 ppm
OSHA Z1	Permissible exposure limit	435 mg/m3

General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Eye protection

Wear chemical splash goggles when there is the potential for exposure of the eyes to liquid, vapor or mist.

Skin and body protection

Wear resistant gloves (consult your safety equipment supplier).

Discard gloves that show tears, pinholes, or signs of wear.

Wear normal work clothing including long pants, long-sleeved shirts and foot covering to prevent direct contact of the product with the skin. Launder clothing before reuse. If skin irritation develops, contact your facility health and safety professional or your local safety equipment supplier to determine the proper personal protective equipment for your use.

Respiratory protection

A NIOSH-approved air-purifying respirator with an appropriate cartridge and/or filter may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits (if applicable) or if overexposure has otherwise been determined. Protection provided by air-purifying respirators is limited. Use a positive pressure, air-supplied respirator if there is any potential

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for uncontrolled release, exposure levels are not known or any other circumstances where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Form	No data
Colour	Colorless
Odour	mild, aromatic
Boiling point/boiling range	137.00 °C
Melting point/range	-52.60 °F / -47.00 °C
pH	7
Flash point	26.66 °C
Evaporation rate	0.86 (n-Butyl Acetate)
Lower explosion limit/Upper explosion limit	1.0 %(V) / 6.6 %(V)
Vapour pressure	1.065 kPa @ 25 °C
Vapour density	3.66 (AIR=1)
Density	0.87 g/cm ³ @ 68 °F / 20 °C 7.25 lb/gal @ 77 °F / 25 °C
Solubility	negligible in water
Partition coefficient: n-octanol/water	No data
log Pow	3.16
Autoignition temperature	980 °F / 527 °C

10. STABILITY AND REACTIVITY

Stability

Stable.

Conditions to avoid

Heat, flames and sparks.

Incompatible products

Strong oxidizing agents

Hazardous decomposition products

carbon dioxide and carbon monoxide, Hydrocarbons

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Hazardous reactions

Product will not undergo hazardous polymerization.

Thermal decomposition

No data

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity : LD 50 Rat: 4,300 mg/kg

Acute inhalation toxicity

XYLENE : no data available
ETHYL BENZENE : LC Lo
Rat: 4000 ppm, 4 h

Acute dermal toxicity : LD 50 Rabbit:
(>) 2,000 mg/kg

12. ECOLOGICAL INFORMATION

Biodegradability

XYLENE : no data available
ETHYL BENZENE : no data available

Bioaccumulation

XYLENE : no data available
ETHYL BENZENE : no data available

Ecotoxicity effects

Toxicity to fish : 96 h LC 50 Fathead minnow (*Pimephales promelas*):
23.53 - 29.97 mg/l
Method: Static
Mortality

Toxicity to daphnia and other aquatic invertebrates. : 24 h LC 50 Water flea (*Daphnia magna*): > 100.00 - <
1,000.00 mg/l Method: Static
Mortality

Toxicity to algae

XYLENE : no data available

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ETHYL BENZENE : 96 h Growth inhibition *Pseudokirchneriella subcapitata* (green algae): 3.60 mg/l

Toxicity to bacteria

XYLENE : no data available
ETHYL BENZENE : no data available

Biochemical Oxygen Demand (BOD)

XYLENE : no data available
ETHYL BENZENE : no data available

Chemical Oxygen Demand (COD)

XYLENE : no data available
ETHYL BENZENE : no data available

Additional ecological information

XYLENE : no data available
ETHYL BENZENE : no data available

13. DISPOSAL CONSIDERATIONS

Waste disposal methods

Dispose of in accordance with all applicable local, state and federal regulations. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Ashland Distribution's Environmental Services Group at 800-637-7922.

14. TRANSPORT INFORMATION

REGULATION

ID NUMBER	PROPER SHIPPING NAME	*HAZARD CLASS	SUBSIDIARY HAZARDS	PACKING GROUP	MARINE POLLUTANT /LTD. QTY.
-----------	----------------------	---------------	--------------------	---------------	-----------------------------

U.S. DOT - ROAD

UN 1307	Xylenes	3		III	
---------	---------	---	--	-----	--

U.S. DOT - RAIL

UN 1307	Xylenes	3		III	
---------	---------	---	--	-----	--

U.S. DOT - INLAND WATERWAYS

UN 1307	Xylenes	3		III	
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TRANSPORT CANADA - ROAD

UN	1307	XYLENES	3	III
----	------	---------	---	-----

TRANSPORT CANADA - RAIL

UN	1307	XYLENES	3	III
----	------	---------	---	-----

TRANSPORT CANADA - INLAND WATERWAYS

UN	1307	XYLENES	3	III
----	------	---------	---	-----

INTERNATIONAL MARITIME DANGEROUS GOODS

UN	1307	XYLENES	3	III
----	------	---------	---	-----

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

UN	1307	Xylenes	3	III
----	------	---------	---	-----

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

UN	1307	Xylenes	3	III
----	------	---------	---	-----

MEXICAN REGULATION FOR THE LAND TRANSPORT OF HAZARDOUS MATERIALS AND WASTES

UN	1307	XILENOS	3	III
----	------	---------	---	-----

*ORM = ORM-D, CBL = COMBUSTIBLE LIQUID

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

15. REGULATORY INFORMATION

California Prop. 65

WARNING! This product contains a chemical known in the State of California to cause cancer.

BENZENE
ETHYL BENZENE

WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

TOLUENE
BENZENE

SARA Hazard Classification

Fire Hazard

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Acute Health Hazard
Chronic Health Hazard

SARA 313 Component(s)

XYLENE	77.00 %
ETHYL BENZENE	22.00 %

New Jersey RTK Label Information

XYLENE	1330-20-7
ETHYL BENZENE	100-41-4

Pennsylvania RTK Label Information

XYLENE	1330-20-7
ETHYL BENZENE	100-41-4

Notification status

Australia. Industrial Chemical (Notification and Assessment) Act	y (positive listing)
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)	y (positive listing)
Switzerland. Consolidated Inventory	y (positive listing)
China. Inventory of Existing Chemical Substances	y (positive listing)
Japan. Kashin-Hou Law List	y (positive listing)
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	y (positive listing)
US. Toxic Substances Control Act	y (positive listing)
EU. EINECS	y (positive listing)
Korea. Toxic Chemical Control Law (TCCL) List	y (positive listing)
Japan. Industrial Safety & Health Law (ISHL) List	y (positive listing)
Japan. Kashin-Hou Law List	y (positive listing)
Japan. Industrial Safety & Health Law (ISHL) List	y (positive listing)
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand	y (positive listing)
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand	y (positive listing)
Switzerland. Consolidated Inventory	y (positive listing)

Reportable quantity - Product

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US. EPA CERCLA Hazardous Substances (40 CFR 302)

100 lbs
129

Reportable quantity-Components

XYLENE

1330-20-7

100 lbs

	HMIS	NFPA
Health	2*	2
Flammability	3	3
Physical hazards	0	
Instability		0
Specific Hazard	--	--

16. OTHER INFORMATION

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

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METHYL ISOBUTYL KETONE
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1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Ashland
P.O. Box 2219
Columbus, OH 43216

Regulatory Information Number
Telephone
Emergency telephone number

1-800-325-3751
614-790-3333
1-800-ASHLAND
(1-800-274-5263)

Product name METHYL ISOBUTYL KETONE
Product code 56043
Product Use Description No data

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: liquid, colourless

WARNING! Flammable Liquid, Moderate skin irritant, Moderate eye irritant.

Potential Health Effects

Routes of exposure

Inhalation, Skin absorption, Skin contact, Eye Contact, Ingestion

Eye contact

Can cause eye irritation. Symptoms include stinging, tearing, redness, and swelling of eyes.

Skin contact

May cause mild skin irritation. Prolonged or repeated contact may dry the skin. Symptoms may include redness, burning, drying and cracking of skin, and skin burns. Passage of this material into the body through the skin is possible, but it is unlikely that this would result in harmful effects during safe handling and use.

Ingestion

Swallowing small amounts of this material during normal handling is not likely to cause harmful effects. Swallowing large amounts may be harmful. This material can get into the lungs during swallowing or vomiting. This results in lung inflammation and other lung injury.

Inhalation

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Breathing of vapor or mist is possible. Breathing small amounts of this material during normal handling is not likely to cause harmful effects. Breathing large amounts may be harmful. Symptoms are not expected at air concentrations below the recommended exposure limits, if applicable (see Section 8.).

Aggravated Medical Condition

Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: skin, lung (for example, asthma-like conditions), liver, kidney

Symptoms

Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include: mouth and throat irritation (soreness, dry or scratchy feeling, cough), stomach or intestinal upset (nausea, vomiting, diarrhea), irritation (nose, throat, airways), central nervous system depression (dizziness, drowsiness, weakness, fatigue, nausea, headache, unconsciousness)

Target Organs

Exposure to this material (or a component) has been found to cause kidney damage in male rats. The mechanism by which this toxicity occurs is specific to the male rat and the kidney effects are not expected to occur in humans. This material (or a component) shortens the time of onset or worsens the liver and kidney damage induced by other chemicals. This material (or a component) shortens the time of onset or worsens the neurotoxic effects induced by other chemicals. Overexposure to this material (or its components) has been suggested as a cause of the following effects in laboratory animals: mild, reversible liver effects, mild, reversible kidney effects

Carcinogenicity

There is no information available. The chance of this material causing cancer is unknown. This material is not listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or the Occupational Safety and Health Administration (OSHA).

Reproductive hazard.

This material (or a component) has been shown to cause harm to the fetus in laboratory animal studies. Harm to the fetus occurs only at exposure levels that harm the pregnant animal. The relevance of these findings to humans is uncertain.

Other information

No data

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3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Concentration
METHYL ISOBUTYL KETONE	108-10-1	<=100%

4. FIRST AID MEASURES

Eyes

If symptoms develop, immediately move individual away from exposure and into fresh air. Flush eyes gently with water for at least 15 minutes while holding eyelids apart; seek immediate medical attention.

Skin

Remove contaminated clothing. Wash exposed area with soap and water. If symptoms persist, seek medical attention. Launder clothing before reuse.

Ingestion

Seek medical attention. If individual is drowsy or unconscious, do not give anything by mouth; place individual on the left side with the head down. Contact a physician, medical facility, or poison control center for advice about whether to induce vomiting. If possible, do not leave individual unattended.

Inhalation

If symptoms develop, immediately move individual away from exposure and into fresh air. Seek immediate medical attention; keep person warm and quiet. If person is not breathing, begin artificial respiration. If breathing is difficult, administer oxygen. If symptoms develop, move individual away from exposure and into fresh air. If symptoms persist, seek medical attention. If breathing is difficult, administer oxygen. Keep person warm and quiet; seek immediate medical attention.

Notes to physician

Hazards: This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 2 - Swallowing) when deciding whether to induce vomiting.

Treatment: No information available.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

water spray, carbon dioxide (CO₂), dry chemical, alcohol-resistant foam

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Hazardous combustion products

May form:, carbon dioxide and carbon monoxide, formaldehyde

Precautions for fire-fighting

Material is volatile and readily gives off vapors which may travel along the ground or be moved by ventilation and ignited by pilot lights, flames, sparks, heaters, smoking, electric motors, static discharge or other ignition sources at locations near the material handling point. Wear full firefighting turn-out gear (full Bunker gear), and respiratory protection (SCBA). Water may be ineffective for extinguishment unless used under favorable conditions by experienced fire fighters.

Flammability Class for Flammable Liquids

Flammable Liquid Class IB Flammable Liquid Class IB

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

For personal protection see section 8. Eliminate all ignition sources (flares, flames including pilot lights, electrical sparks). Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source. Prevent from entering drains, sewers, streams or other bodies of water. Prevent from spreading. If runoff occurs, notify authorities as required. Pump or vacuum transfer spilled product to clean containers for recovery. Absorb unrecoverable product. Transfer contaminated absorbent, soil and other materials to containers for disposal.

Environmental precautions

No data

Methods for cleaning up

Note: Use only non-sparking equipment to clean up spill.

7. HANDLING AND STORAGE

Handling

Containers of this material may be hazardous when emptied. Since emptied containers retain product residues (vapor, liquid, and/or solid), all hazard precautions given in the data sheet must be observed. Static ignition hazard can result from handling and use. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Special precautions may be necessary to dissipate static electricity for non-conductive containers. Use proper bonding and grounding during product transfer as described in National Fire Protection Association document NFPA 77.

Storage

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Store in a cool, dry, ventilated area away from sources of heat, moisture, and incompatible substances. Do not store exposed to direct light. Keep containers closed when not in use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

METHYL ISOBUTYL KETONE		108-10-1
ACGIH	time weighted average	50 ppm
ACGIH	Short term exposure limit	75 ppm
NIOSH	Recommended exposure limit (REL):	50 ppm
NIOSH	Recommended exposure limit (REL):	205 mg/m ³
NIOSH	Short term exposure limit	75 ppm
NIOSH	Short term exposure limit	300 mg/m ³
OSHA Z1	Permissible exposure limit	100 ppm
OSHA Z1	Permissible exposure limit	410 mg/m ³

General advice

These recommendations provide general guidance for handling this product. Personal protective equipment should be selected for individual applications and should consider factors which affect exposure potential, such as handling practices, chemical concentrations and ventilation. It is ultimately the responsibility of the employer to follow regulatory guidelines established by local authorities.

Exposure controls

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below TLV(s).

Eye protection

Chemical splash goggles in compliance with OSHA regulations are advised; however, OSHA regulations also permit other type safety glasses. Consult your safety representative.

Skin and body protection

To prevent repeated or prolonged skin contact, wear impervious clothing and boots. Wear resistant gloves such as:
polyvinyl alcohol
butyl-rubber

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Respiratory protection

If workplace exposure limit(s) of product or any component is exceeded (see exposure guidelines), a NIOSH-approved air supplied respirator is advised in absence of proper environmental control. OSHA regulations also permit other NIOSH respirators (negative pressure type) under specified conditions (see your industrial hygienist). Engineering or administrative controls should be implemented to reduce exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Form	No data
Colour	colourless
Odour	No data
Boiling point/range	240.4 °F / 115.8 °C @ 101.3232 kPa
Melting point/range	-121 °F / -85 °C
pH	No data
Flash point	72.99 °F / 22.77 °C Closed Cup
Evaporation rate	1.64 N-Butyl Acetate
Explosion limits	8 %(V) 12 %(V)
Vapour pressure	2.653068 kPa @ 77 °F / 25 °C
Vapour density	3.5
Density	+/- 0.01 0.8015 g/cm ³ @ 68.00 °F / 20.00 °C 6.67 lb/gal @ 68 °F / 20 °C
Solubility	partly soluble in water
Partition coefficient (n-octanol/water)	No data
Autoignition temperature	840 °F / 449 °C

10. STABILITY AND REACTIVITY

Stability

Stable, however, forms peroxides of unknown stability.

Conditions to avoid

None known.

Incompatible products

Avoid contact with: amines, copper, copper alloys, strong alkalis, strong mineral acids, strong oxidizing agents, strong reducing agents

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Hazardous decomposition products

May form:, carbon dioxide and carbon monoxide, formaldehyde

Hazardous reactions

Product will not undergo hazardous polymerization.

Thermal decomposition

No data

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

METHYL ISOBUTYL KETONE LD 50 Rat: 2,080 mg/kg

Acute inhalation toxicity

METHYL ISOBUTYL KETONE LD 50 Rat: 2000 ppm, 4 h

Acute dermal toxicity

METHYL ISOBUTYL KETONE LD 50 Rabbit: 3.0 g/kg

12. ECOLOGICAL INFORMATION

Aquatic toxicity

Acute and Prolonged Toxicity to Fish

No data

Acute Toxicity to Aquatic Invertebrates

No data

Environmental fate and pathways

No data

13. DISPOSAL CONSIDERATIONS

Waste disposal methods

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Dispose of in accordance with all applicable local, state and federal regulations. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Ashland Distribution Company, IC&S Environmental Services Group at 800-637-7922.

14. TRANSPORT INFORMATION

IMDG:
UN1245, METHYL ISOBUTYL KETONE 3, II
IATA_P:
UN1245, Methyl isobutyl ketone 3, II
IATA_C:
UN1245, Methyl isobutyl ketone 3, II
CFR_ROAD:
UN1245, Methyl isobutyl ketone 3, II
CFR_RAIL:
UN1245, Methyl isobutyl ketone 3, II
CFR_INWTR:
UN1245, Methyl isobutyl ketone 3, II
IMDG_INWTR:
UN1245, METHYL ISOBUTYL KETONE 3, II
IMDG_ROAD:
UN1245, METHYL ISOBUTYL KETONE 3, II
IMDG_RAIL:
UN1245, METHYL ISOBUTYL KETONE 3, II

Dangerous goods descriptions may not reflect package size, quantity, end-use or region-specific exceptions that can be applied to shipments. Consult shipping documents for material-specific descriptions.

15. REGULATORY INFORMATION

California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects or any other harm.

Additional regulations

US. Toxic Substances Control Act (TSCA) Section 8(a) Inventory Update Rule (EPA Form U Instructions, App A)
US. Toxic Substances Control Act (TSCA) Section 8(d) Health & Safety Data Reporting (40 CFR 716, Subpt B)

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SAFETY DATA SHEET

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Version: 1.2

METHYL ISOBUTYL KETONE
56043

US. Toxic Substances Control Act (TSCA) Section 8(d) Health & Safety Data Reporting
(40 CFR 716, Subpt B)

US. Toxic Substances Control Act (TSCA) Section 8(d) Health & Safety Data Reporting
(40 CFR 716, Subpt B)

US. OSHA Hazard Communication Standard: On One of the Floor Lists of the OSHA
HCS (29 CFR 1910.1200).

US. High Production Volume Chemicals

US. Toxic Substances Control Act (TSCA) Section 4 - Master Testing List

US. Drug Enforcement Administration (DEA) Listed Essential Chemicals (21 CFR
1310.02(b) and 1310.04(f)(2))

US. Drug Enforcement Administration (DEA) Listed Essential Chemicals (21 CFR
1310.02(b) and 1310.04(f)(2))

US. Drug Enforcement Administration (DEA) Listed Essential Chemicals (21 CFR
1310.02(b) and 1310.04(f)(2))

US. Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21
CFR 1310.12(c))

US. Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21
CFR 1310.12(c))

OECD. Program to investigate the potential hazards of high production volume further
work.

OECD. Program to investigate the potential hazards of high production volume further
work.

SARA 313 Component(s)

METHYL ISOBUTYL 108-10-1 100%
KETONE

OSHA Hazards

Flammable Liquid
Moderate skin irritant
Moderate eye irritant

	Health	Flammability	Reactivity	Other
HMIS	1	3	0	
NFPA	2	3	0	

16. OTHER INFORMATION

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56043

The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

This MSDS has been prepared by Ashland's Environmental Health and Safety Department (1-800-325-3751).

A2511UG7

Material Safety Data Sheet



10430
n-Butyl acetate

Revision Date
Revision Number

02-Sep-2010
1.00

1. PRODUCT AND COMPANY IDENTIFICATION

Identification of the
substance/preparation

n-Butyl acetate

CAS-No

123-86-4

Use of the Substance
/Preparation

solvent.

Supplier

OXEA Corporation
1505 West LBJ Freeway, Suite 400
Dallas, TX 75234
USA

Product Information

Product Stewardship
FAX: +49 (0)208 693 2053
email: psq@oxea-chemicals.com

Emergency telephone number

in USA, call 800 424 9300
outside USA, call 703 527 3887, collect calls accepted

2. HAZARDS IDENTIFICATION

Emergency Overview

Product Description

Physical state
Colour
Odour

liquid
colourless
fruity

Statements of hazard

Warning

Flammable liquid and vapour
Vapours may form explosive mixture with air
Vapour is heavier than air and can travel considerable distance to a source of ignition
and flashback
Vapours may cause drowsiness and dizziness
Repeated exposure may cause skin dryness or cracking

OSHA Regulatory Status

This material is hazardous as defined by the American OSHA Hazard
Communication Standard (29CFR 1910.1200).

Potential Health Effects

Principle Routes of Exposure

Inhalation, Eye contact, Skin contact, Ingestion.

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in USA, call 800 424 9300; outside USA, call USA 703 527 3887, collect calls accepted
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Inhalation	Components of the product may be absorbed into the body by inhalation. Vapours may cause drowsiness and dizziness.
Skin contact	Repeated exposure may cause skin dryness or cracking.
Main symptoms	cough, nausea, vomiting, haadache, unconsciousness, shortness of breath, dizziness, narcosis.
Target Organ Effects	Lung oedema Central nervous system effects

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS-No	Concentration (%)	OSHA status
n-Butyl acetate	123-86-4	> 99,0	hazardous

4. FIRST AID MEASURES

General advice

Remove contaminated, soaked clothing immediately and dispose of safely. First aider needs to protect himself.

Inhalation

Keep at rest. Aerate with fresh air. When symptoms persist or in all cases of doubt seek medical advice.

Eyes

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.

Skin

Wash off immediately with soap and plenty of water. When symptoms persist or in all cases of doubt seek medical advice.

Ingestion

Call a physician immediately. Do not induce vomiting without medical advice.

Main symptoms

cough, nausea, vomiting, headache, unconsciousness, shortness of breath, dizziness, narcosis.

Special hazard

Lung oedema, central nervous system effects, Prolonged skin contact may defat the skin and produce dermatitis.

Notes to physician

Treat symptomatically.

5. FIRE-FIGHTING MEASURES

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in USA, call 800 424 9300; outside USA, call USA 703 527 3887, collect calls accepted
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n-Butyl acetate

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5. FIRE-FIGHTING MEASURES

OSHA Flammability classification
Flammable liquids Class 1 C

Suitable extinguishing media
foam, dry chemical, carbon dioxide (CO₂), water spray.

Extinguishing media which must not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

Special exposure hazards arising from the substance or preparation itself, its combustion products, or released gases

Under conditions giving incomplete combustion, hazardous gases produced may consist of:
carbon monoxide (CO)
carbon dioxide (CO₂)

Combustion gases of organic materials must in principle be graded as inhalation poisons
Vapour is heavier than air and can travel considerable distance to a source of ignition and flashback
Vapours may form explosive mixtures with air

Special protective equipment for fire-fighters

Fire fighter protection should include a self-contained breathing apparatus (NIOSH-approved or EN 133) and full fire-fighting turn out gear.

Precautions for fire-fighting

Cool containers / tanks with water spray. Dike and collect water used to fight fire. Water run-off can cause environmental damage. Keep people away from and upwind of fire.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Avoid contact with skin and eyes. Avoid breathing vapors or mists. Keep people away from and upwind of spill/leak. Ensure adequate ventilation, especially in confined areas. Keep away from heat and sources of ignition. For emergency responders: Personal protection see section 8.

Environmental precautions

Prevent further leakage or spillage. Do not discharge product into the aquatic environment without pretreatment (biological treatment plant).

Methods for containment

Stop the flow of material, if possible without risk. Dike spilled material, where this is possible.

Methods for cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. If liquid has been spilled in large quantities clean up promptly by scoop or vacuum. Dispose of in accordance with local regulations. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours).

Authority Notification

Within the United States, call the National Response Center (800-424-8802) and appropriate state and local authorities if the quantity released over 24 hours is equal to or greater than the reportable quantity listed below:

Emergency telephone number
3 / 11

in USA, call 800 424 9300; outside USA, call USA 703 527 3887, collect calls accepted
USA (A-US)

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 n-Butyl acetate

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Reportable Quantity (RQ) 5000 lb/ 2270 kg (Butyl acetate)

7. HANDLING AND STORAGE

Handling

Advice on safe handling

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Provide sufficient air exchange and/or exhaust in work rooms.

Advice on protection against fire and explosion

Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). In case of fire, emergency cooling with water spray should be available. Ground and bond containers when transferring material. Vapour is heavier than air and can travel considerable distance to a source of ignition and flashback. Vapours may form explosive mixture with air.

Storage

Technical measures/Storage conditions

Keep containers tightly closed in a cool, well-ventilated place. Handle and open container with care.

Suitable material stainless steel, mild steel, aluminium
 Unsuitable material copper. Attacks some forms of plastic and rubber

Advice on common storage

Incompatible products:
 strong acids and strong bases
 strong oxidizing agents

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits United States of America

US ACGIH

Component	TWA (mg/m ³)	TWA (ppm)	STEL (mg/m ³)	STEL (ppm)	Ceiling (mg/m ³)	Ceiling (ppm)
n-Butyl acetate 123-86-4		150		200		

US OSHA Z-1

Component	Ceiling (mg/m ³)	Ceiling (ppm)	PEL (mg/m ³)	PEL (ppm)	Skin Designation
n-Butyl acetate 123-86-4			710	150	

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n-Butyl acetate

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US OSHA Z-1A Revoked (1993)

Component	TWA (mg/m ³)	TWA (ppm)	STEL (mg/m ³)	STEL (ppm)	Ceiling (mg/m ³)	Ceiling (ppm)	Skin Designation
n-Butyl acetate 123-86-4	710	150	950	200			

US NIOSH Pocket Guide

Component	STEL (mg/m ³)	STEL (ppm)	REL (mg/m ³)	REL (ppm)
n-Butyl acetate 123-86-4	950	200	710	150

US NIOSH IDHL

Component	Potential cancer hazard	Concentration (mg/m ³)	Concentration (ppm)	Listed w/o limits
n-Butyl acetate 123-86-4			1700	

Note For details and further information please refer to the original regulation.

Occupational exposure controls

Engineering measures

General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

Personal protective equipment

General industrial hygiene practice

Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Ensure that eyewash stations and safety showers are close to the workstation location.

Hygiene measures

When using, do not eat, drink or smoke. Take off all contaminated clothing immediately. Wash hands before breaks and immediately after handling the product.

Respiratory protection

Respirator with filter for organic vapour. Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust). Equipment should conform to NIOSH.

Hand protection

Wear protective gloves. Recommendations are listed below. Other protective material may be used, depending on the situation, if adequate degradation and permeation data is available. If other chemicals are used in conjunction with this chemical, material selection should be based on protection for all chemicals present.

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Suitable material butyl-rubber
Suitable material polyvinylchloride / nitrile rubber

Eye protection

Tightly fitting safety goggles. In addition to goggles, wear a face shield if there is a reasonable chance for splash to the face.

Skin and body protection

Impervious clothing. Wear face-shield and protective suit for abnormal processing problems.

Environmental exposure controls

If possible use in closed systems. If leakage can not be prevented, the substance needs to be suck off at the emersion point, if possible without danger. Observe the exposure limits, clean exhaust air if needed. If recycling is not practicable, dispose of in compliance with local regulations. Inform the responsible authorities in case of leakage into the atmosphere, or of entry into waterways, soil or drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state liquid
Colour colourless
Odour fruity
Odour threshold 7 - 20 ppm
Molecular weight 116,16
Molecular formula C₈ H₁₂ O₂

Flash point 81 °F (27 °C)
Method EU A.9
Autoignition temperature 779 °F (415 °C)
Method DIN 51794
Lower explosion limit 1,2 Vol %
Upper explosion limit 7,5 Vol %
Melting point/range < -130 °F (< -90 °C) (Pour point)
Boiling point/range 259 °F (126 °C) @ 1013 hPa

Vapour pressure
Values [hPa] @ °C @ °F
15 20 68
63 50 122

Density
Values [g/cm³] @ °C @ °F Method
0,881 20 68 DIN 51757

Refractive Index 1,393 @ 68 °F (20 °C)

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n-Butyl acetate

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Viscosity Method	0,73 mPa*s @ 68 °F (20 °C) dynamic ASTM D445
pH	6,2 (5 g/l in water @ 20 °C (68 °F))
Water solubility	5,3 g/l @ 68 °F (20 °C) OECD 105
log Pow	2,3 (measured) OECD 117
Vapour density	4,0 (Air = 1) @ 20 °C (68 °F)
Evaporation rate	1,0 (n-Butyl acetate = 1)
Surface tension	61,3 mN/m (1 g/l @ 20°C), OECD 115

10. STABILITY AND REACTIVITY

Stability

Stable under recommended storage conditions.

Hazardous reactions

Vapours may form explosive mixture with air.

Conditions to avoid

Avoid contact with heat, sparks, open flame, and static discharge. Avoid any source of ignition.

Materials to avoid

strong acids and strong bases, strong oxidizing agents.

Hazardous decomposition products

No decomposition if stored and applied as directed.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure Inhalation, Eye contact, Skin contact, Ingestion

Acute toxicity				
Routes of Exposure	Endpoint	Values	Species	Method
n-Butyl acetate (123-86-4)				
Oral	LD50	10760 mg/kg	rat, male/female	OECD 423
Dermal	LD50	> 14112 mg/kg	rabbit	OECD 402
Inhalative	LC0	23,4 mg/l (4h)	rat, male/female	OECD 403, in vivo, aerosol

Irritation and corrosion				
Target Organ Effects	Species	Result	Method	
n-Butyl acetate (123-86-4)				
Skin	rabbit	No skin irritation	OECD 404	
Eyes	rabbit	No eye irritation	OECD 405	

Sensitization				
Target Organ Effects	Species	Evaluation	Method	

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n-Butyl acetate

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n-Butyl acetate (123-86-4)				
Skin	mouse	not sensitizing	MEST	
Skin	guinea pig	not sensitizing	Maximisation Test	
Skin	guinea pig	not sensitizing	OECD 406	

Subacute, subchronic and prolonged toxicity				
Type	Dose	Species	Method	
n-Butyl acetate (123-86-4)				
90-day	NOAEC: 500 ppm	rat, male/female	EPA OTS 798.2450	Inhalation

Carcinogenicity, Mutagenicity, Reproductive toxicity				
Type	Dose	Species	Evaluation	Method
n-Butyl acetate (123-86-4)				
Mutagenicity		Salmonella typhimurium	negative	OECD 471 (Ames)
Mutagenicity		CHL	negative (without metabolic activation)	OECD 473 (Chromosomal Aberration)
Reproductive toxicity	NOAEC: 3615 mg/m ³	rat, male/female		OECD 416
Reproductive toxicity	LOAEC: 7230 mg/m ³	rat		OECD 414 Developmental toxicity

n-Butyl acetate, CAS 123-86-4

Main symptoms

dizziness, narcosis, cough, nausea, vomiting, headache, unconsciousness, shortness of breath.

Target Organ Systemic Toxicant - Repeated exposure

Repeated exposure may cause skin dryness or cracking.

Other adverse effects

Components of the product may be absorbed into the body by inhalation.

Note

Handle in accordance with good industrial hygiene and safety practice. Further details on substance data can be found in the registration dossier under the following link: <http://apps.echa.europa.eu/registered/registered-sub.aspx>.

12. ECOLOGICAL INFORMATION

Acute aquatic toxicity			
Species	Exposure time	Dose	Method
n-Butyl acetate (123-86-4)			
Daphnia magna (Water flea)	48h	EC50: 44 mg/l	
Pimephales promelas (fathead minnow)	96h	LC50: 18 mg/l	OECD 203
Desmodesmus subspicatus	72h	EC50: 647,7 mg/l	Growth rate
Desmodesmus subspicatus	72h	NOEC: 200 mg/l	Growth rate
Tetrahymena pyriformis	40 h	IC50: 356 mg/l	

Emergency telephone number
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In USA, call 800 424 9300; outside USA, call USA 703 527 3987, collect calls accepted
USA (A-US)

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n-Butyl acetate

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n-Butyl acetate, CAS 123-86-4

Biodegradation

83 % (28 d), aerobic, Readily biodegradable, OECD 301 D.

PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)

Note

Avoid release to the environment.

13. DISPOSAL CONSIDERATIONS

Product Information

Disposal required in compliance with all waste management related state and local regulations. The choice of the appropriate method of disposal depends on the product composition by the time of disposal as well as the local statutes and possibilities for disposal.

Uncleaned empty packaging

Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.

14. TRANSPORT INFORMATION

ICAO/IATA

UN/ID No	UN 1123
Proper shipping name	Butyl acetates
Class	3
Packing group	III

IMDG

UN/ID No	UN 1123
Proper shipping name	Butyl acetates
Class	3
Packing group	III
EmS	F-E, S-D

IBC-Code

Product name	Butyl acetate
Ship type	3
Pollution category	Y

D.O.T. (49CFR)

UN/ID No	UN 1123
Proper shipping name	Butyl acetates
Class	3
Packing group	III
Reportable Quantity (RQ)	5000 lb/ 2270 kg (Butyl acetate)

Emergency telephone number
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n-Butyl acetate

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14. TRANSPORT INFORMATION

Emergency Response Guide 129

TDG (Transport of Dangerous Goods) Canada

UN/ID No	UN 1123
Proper shipping name	Butyl acetates
Class	3
Packing group	III

15. REGULATORY INFORMATION

OSHA Regulatory Status

This material is hazardous as defined by the American OSHA Hazard Communication Standard (29CFR 1910.1200).

Federal and State Regulations

Components of the product are listed in the quoted regulations. For details please refer to the regulations directly. This list is not exhaustive, please check for other applicable regulations.

Federal Regulations

This product is listed on the TSCA inventory

n-Butyl acetate (CAS #: 123-86-4)

CERCLA Hazardous Substance
CERCLA RQ 5000 LBS

State Regulations

n-Butyl acetate (CAS #: 123-86-4)

CA Hazardous Substances (Director's) List
IL Chemical Safety Act
IL Toxic Substances Disclosure to Employees Act
MA Hazardous Substances List
PA RTK List
RI RTK List

International Inventories

n-Butyl acetate (CAS #: 123-86-4)

AICS (AU)
DSL (CA)
G-1320 (CH)
IECSC (CN)
EC-No. 2046581 (EU)

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n-Butyl acetate

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n-Butyl acetate (CAS #: 123-86-4)
ENCS (2)-731 (JP)
KECI KE-04179 (KR)
PICCS (PH)
TSCA (US)
NZIoC (NZ)

16. OTHER INFORMATION

Revision Date 02-Sep-2010
Issuing date 02-Sep-2010

Training advice
For effective first-aid, special training / education is needed.

Hazard Rating Systems

NFPA (National Fire Protection Association)

Health Hazard	2
Fire Hazard	3
Reactivity	0

HMIS (Hazardous Material Information System)

Health Hazard	2
Flammability	3
Physical Hazard	0

Sources of key data used to compile the datasheet

Information contained in this safety data sheet is based on Oxea owned data and public sources deemed valid or acceptable. The absence of data elements required by ANSI or 2001/58/EC indicates, that no data meeting these requirements is available.

Further information for the safety data sheet

Changes against the previous version are marked by ***. Observe national and local legal requirements. For more information, other material safety data sheets or technical data sheets please consult the Oxea homepage (www.oxea-chemicals.com).

Disclaimer

For industrial use only. The information contained herein is accurate to the best of our knowledge. We do not suggest or guarantee that any hazards listed herein are the only ones which exist. Oxea makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances. User has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. User must meet all applicable safety and health standards.

Emergency telephone number
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in USA, call 800 424 9300; outside USA, call USA 703 527 3887, collect calls accepted
USA (A-US)

Acute Toxicity:

INHALATION - Mild irritant.

EYE CONTACT - Mild irritant. Possible redness.

SKIN CONTACT - Mild irritant. Can dry and defat skin causing cracks, irritation, and dermatitis.

INGESTION - Mild irritant.

Effects of Overexposure, Urethane Reducer Slow:

Short Term Exposure

The substance irritates the eyes, skin, and respiratory tract. High exposures, above the occupational exposure levels, can cause weakness, headache, and drowsiness and may cause unconsciousness. Irritates the eyes and respiratory tract. Causes central nervous system depression. High levels of exposure may cause fatigue, weakness, confusion, euphoria, dizziness, headache; dilated pupils, lacrimation (discharge of tears); nervousness, muscle fatigue, insomnia; paresthesia; cardiac dysrhythmia, unconsciousness and death may occur. Inhalation: 100 ppm exposure can cause dizziness, drowsiness and hallucinations. 100 - 200 ppm can cause depression, 200 - 500 ppm can cause headaches, nausea, loss of appetite, loss of energy, loss of coordination and coma. In addition to the above, death has resulted from exposure to 10,000 ppm for an unknown time. Skin: Can cause dryness and irritation. Absorption may cause or increase the severity of symptoms listed above. Eyes: Can cause irritation at 300 ppm. Ingestion: Can cause a burning sensation in the mouth and stomach, upper abdominal pain, cough, hoarseness, headache, nausea, loss of appetite, loss of energy, loss of coordination and coma.

Long Term Exposure

n-Butyl acetate may cause skin allergy. n-Butyl acetate has been shown to damage the developing fetus in animals. Prolonged and repeated exposure to butyl acetates can cause defatting, drying and cracking of the skin. Although many solvents and petroleum based products cause lung, brain and nerve damage, these chemicals have not been adequately evaluated to determine these effects. Repeated or prolonged contact with skin may cause dermatitis; drying, cracking, itching, and skin rash. May cause liver, kidney, and brain damage; decreased learning ability, psychological disorders. Levels below 200 ppm may produce headache, tiredness and nausea. From 200 - 750 ppm symptoms may include insomnia, irritability, dizziness, some loss of memory, cause heart palpitations and loss of coordination. Blood effects and anemia have been reported but are probably due to contamination by benzene. May decrease the fertility in males. Repeated contact can cause drying and cracking of the skin. Many similar petroleum-based chemicals can cause brain and nerve damage.

Section 4 - First Aid Measures

Seek professional medical attention for all over-exposures and/or persistent problems.

INHALATION: Remove person from area to fresh air. If breathing difficulty persists, seek medical attention.

EYE CONTACT: Flush eyes with clean water for a minimum of 15 minutes. Seek medical attention if redness persists.

SKIN CONTACT: Wash exposed area thoroughly with soap and water.

INGESTION: DO NOT INDUCE VOMITTING. Seek immediate medical attention.

Section 5 - Fire Fighting Measures

Flash Point: -4 C (25 F)

LEL: 1.1 %

UEL: 11.5 %

Extinguishing Media: Foam, Alcohol Foam, CO2, Dry Chemical, Water Fog, Other.

Unusual Fire and Explosion Hazards: Vapors can travel to a source of ignition and flash back. Closed containers may explode when exposed to extreme heat or burst when contaminated with water (CO2 gas evolved). Hazards apply to empty containers. Combustion generates toxic fumes.

Hazardous Combustion Products: Carbon monoxide, carbon dioxide, oxides of nitrogen.

Special Firefighting Procedures: Highly toxic fumes may be generated by thermal decomposition. Water runoff from firefighting can cause environmental damage. Dike and collect water used to fight fire.

Fire Equipment: Full fire fighter equipment including SCBA should be worn to avoid skin contact and inhalation of concentrated vapors. Minimize skin exposure.

Section 6 - Accidental Release Measures

Eliminate all sources of ignition, provide adequate ventilation, dike spill area and add absorbent earth or sawdust to spilled liquid. Sweep up and dispose of in appropriate containers in accordance with Federal, State and/or Local regulations.

Section 7 - Handling and Storage

Safe Handling Measures: Use non-sparking tools and explosion proof equipment when handling this material. Avoid hot surfaces. Use in cool, well-ventilated areas. Keep containers closed when not in use. Keep away from excessive heat and open flames. Follow all MSDS/label precautions even after container is emptied because they may retain product residues.

Storage Requirements: Store in a cool area away from heat and flames. Do not reuse container when empty.

Section 8 - Exposure Control and PPE

Engineering Controls: General mechanical ventilation or local exhaust should be utilized to keep vapor concentrations below exposure limits (PEL & TLV). Ventilation equipment must be explosion proof.

Safe Work Practices: Eye washes and safety showers in the workplace are recommended. Avoid contact with skin and eyes. Avoid breathing vapors. Wash hands thoroughly after using and before eating, drinking or smoking. Employee education and training in the safe use and handling of this product is required under the OSHA Hazard Communication Standard 29CFR1200. Smoking in area where this material is used should be strictly prohibited. Always use protective clothing and equipment. Remove all contaminated clothing and wash thoroughly when finished working. Keep food and drink away from material and from area where material is being used.

Respiratory Protection: When working with this material use a MSHA/NIOSH approved cartridge respirator or suitable respiratory protection to keep airborne mists and vapor concentrations below the PEL & TLV limits. When using in poorly ventilated and confined spaces, use a fresh-air supplying respirator or a self-contained breathing apparatus.

Eye Protection: Use safety glasses with chemical splash goggles or faceshield.

Skin Protection: Use chemical resistant gloves.

Section 9 - Physical and Chemical Properties

Appearance	Clear and Colorless
Odor	Solvent
Physical State	Liquid
Vapor Density	Heavier than air
Vapor Density	3.49
Evaporation Rate	Slower than butyl acetate
Boiling Range	77 to 146 °C
Weight Percent Volatile	100.00
Specific Gravity (SG)	0.894
Regulatory Coating VOC lb/ga	7.46
Regulatory Coating VOC g/L	894
Actual Coating VOC lb/Gal	7.46
Actual Coating VOC g/L	894

Section 10 - Stability and Reactivity

Incompatible with:

Strong oxidizers

Hazardous products produced under decomposition:

Section 11 - Toxicological Information

This material has not been tested for toxicological effects.

Section 12 - Ecological Information

This material has not been tested for ecological effects.

Section 13 - Disposal Considerations

Subject to hazardous waste generation, treatment, storage and disposal. Product should be disposed of in accordance with all governmental regulations. Subject to hazardous waste generation, treatment, storage and disposal under RCRA, 40CFR261. Product should be disposed of in accordance with all Federal, State and local regulations.

Section 14 - Transportation Information

The following transportation information is provided based on Transtar Autobody Technologies interpretation of shipping regulations. Each shipper is responsible for identifying, naming, marking and labeling prior to offering for transport.

<u>Agency</u>	<u>Proper Shipping Name</u>	<u>UN Number</u>	<u>Packing Group</u>	<u>HazardClass</u>
USDOT	Paint Related Material For inner packagings not exceeding 5L each packaged in a strong outer box: Consumer Commodity ORM-D	UN1263	II	3
IATA	Paint Related Material	UN1263	II	3
IMDG	Paint Related Material	UN1263	II	3

Section 15 - Regulatory Information

The information listed in this section is not all inclusive of all regulations for this product or the chemical components of this product.

California Proposition 65

WARNING: This product contains chemical(s) known to the State of California to cause birth defects or other reproductive harm.

108-88-3 Toluene 10 to 20 %

California Proposition 65

WARNING: This product contains chemical(s) known to the State of California to cause cancer.

- None

The following are not listed under TSCA or do not meet the reporting/listing requirements under TSCA

- None

The following are reportable under SARA

108-88-3Toluene 10 - 20%

Section 16 - Other Information

To the best of our knowledge, the information contained herein is accurate, obtained from sources believed by Transtar Autobody Technologies to be accurate. As with all chemicals, KEEP AWAY FROM CHILDREN AND ANIMALS. FOR PROFESSIONAL USE ONLY. The hazard information contained herein is offered solely for the consideration of the user, subject to his own investigation and verification of compliance with applicable regulations, including the safe use of the product under every foreseeable condition.

MATERIAL SAFETY DATA SHEET

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Product Code(s): 6701, 6704, 6705

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1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Name: Urethane Reducer Fast

Product Code(s): 6701, 6704, 6705

Manufacturer/Supplier: TRANSTAR AUTOBODY TECHNOLOGIES
2040 Heiserman Dr.
Brighton, MI, 48114, USA

24 Hour Emergency Phone(s): 800-424-9300 (CHEMTREC), 613-996-6666 (CANUTEC)

Business Phone: 810-220-3000

Product Use: Reducer

MSDS Prepared By: K. Oman

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS Number	% by Weight
Ethyl Acetate	141-78-6	40- 65%
n-Butyl Acetate	123-86-4	15- 25%
* Methylbenzene; Toluene	108-88-3	15- 25%
* Propylene Glycol Monomethyl Ether Acetate	108-65-6	5 - 10%

See Section 15. Regulatory Information for code descriptions
Weight percent (%) of 0.0 means chemical is in trace amounts.

3. HAZARDS IDENTIFICATION

WARNING! FLAMMABLE. IRRITANT.

HMIS Hazard Ratings: Health =2*, Flammability =3, Chemical Reactivity =0

Note: HMIS ratings involve data and interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

Potential Health Effects

Eyes: Moderate irritation to the eyes. Exposure can cause redness and itching.

Skin: Moderate irritation to the skin. May be absorbed through the skin causing liver, kidney, central nervous system damage. Prolonged contact with this product can cause reddening, swelling, rash scalling or blistering.

Inhalation: Moderate irritation to the respiratory system. May be harmful if inhaled. High concentrations may be fatal.

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Ingestion: Moderate irritation to the digestive tract.

4. FIRST AID MEASURES

Seek professional medical attention for all over-exposures and/or persistent problems.

Eyes Contact: Flush eyes with clean water for a minimum of 15 minutes. Seek medical attention.

Skin Contact: Wash exposed area thoroughly with soap and water.

Inhalation: Remove person from area to fresh air. If breathing difficulty persists, seek medical attention.

Ingestion: DO NOT INDUCE VOMITTING. Seek immediate medical attention.

5. FIRE FIGHTING MEASURES

Flammable Properties

Flash Point: 24 Deg F, -4.5 Deg C Method: TCC
Upper Explosive Limit (UEL): 10.7
Lower Explosive Limit (LEL): 1.1
Autoignition Temperature: No data

Extinguishing Media: Foam, Alcohol Foam, CO2, Dry Chemical, Water Fog, Other.

Special Firefighting Procedures: Full fire fighter equipment including SCBA should be worn to avoid skin contact and inhalation of concentrated vapors. Minimize skin exposure. Highly toxic fumes may be generated by thermal decomposition. Water runoff from firefighting can cause environmental damage. Dike and collect water used to fight fire.

Hazardous Combustion Products: Carbon monoxide, carbon dioxide, oxides of nitrogen.

Unusual Fire and Explosion Hazards: Vapors can travel to a source of ignition and flash back. Closed containers may explode when exposed to extreme heat or burst when contaminated with water (CO2 gas evolved). Hazards apply to empty containers. Combustion generates toxic fumes.

6. ACCIDENTAL RELEASE MEASURES

For large spills or transportation accidents involving release of this product, contact the Emergency Response Center: 800-424-9300.

Eliminate all sources of ignition, provide adequate ventilation, dike spill area and add absorbent earth or sawdust to spilled liquid. Sweep up and dispose of in appropriate containers in accordance with

MATERIAL SAFETY DATA SHEET

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Federal, State and/or Local regulations.

7. HANDLING AND STORAGE

Use non-sparking tools and explosion proof equipment when handling this material. Avoid hot surfaces. Use in cool, well-ventilated areas. Keep containers closed when not in use. Keep away from excessive heat and open flames. Follow all MSDS/label precautions even after container is emptied because they may retain product residues. Store in a cool area away from heat and flames. Do not reuse container when empty.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name/Exposure Limits	CAS Number
-------------------------------	------------

Ethyl Acetate	141-78-6
OSHA PEL: 400 ppm, ACGIH TLV: 400 ppm, OTHER: NA	
n-Butyl Acetate	123-86-4
OSHA PEL: 150, ACGIH TLV: 150, OTHER: STEL200ppm	
* Methylbenzene; Toluene	108-88-3
OSHA PEL: 200 ppm, 300 ppm ceiling	
ACGIH TLV: 50 ppm (skin)	
IDLH: 500 ppm	
* Propylene Glycol Monomethyl Ether Acetate	108-65-6
OSHA PEL: N/A, ACGIH TLV: N/A, OTHER: N/A	

Engineering Controls: General mechanical ventilation or local exhaust should be utilized to keep vapor concentrations below exposure limits (PEL & TLV). Ventilation equipment must be explosion proof.

Respiratory Protection: When working with this material use a MSHA/NIOSH approved cartridge respirator or suitable respiratory protection to keep airborne mists and vapor concentrations below the PEL & TLV limits. When using in poorly ventilated and confined spaces, use a fresh-air supplying respirator or a self-contained breathing apparatus.

Eye Protection: Use safety glasses with chemical splash goggles or faceshield.

Skin Protection: Use chemical resistant gloves.

Safe Work Practices: Eye washes and safety showers in the workplace are recommended. Avoid contact with skin and eyes. Avoid breathing vapors. Wash hands thoroughly after using and before eating, drinking or smoking. Employee education and training in the safe use and handling of this product is required under the OSHA Hazard Communication Standard 29CFR1200. Smoking in area where this material is used should be strictly prohibited. Always use protective clothing and equipment. Remove all contaminated clothing and wash thoroughly when finished working. Keep food and drink away from material and from area where material is being used.

MATERIAL SAFETY DATA SHEET

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9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form: Homogeneous mixture
Physical State: Liquid
Color: Clear, colorless
Odor: Organic solvent
Odor Threshold: No Data
Specific Gravity (water=1) 0.90
Vapor Pressure: No data
Vapor Density: Heavier than air
Material VOC: 7.45 lb/gl 893 g/l
Coating VOC: 7.45 lb/gl 893 g/l
Evaporation Rate: Slower than ether
Boiling Point: 168øF
Melting Point: No data
Freezing Point: No data
Viscosity at Ambient Temperature: No data
Solubility in Water: Insoluble
Octanol/Water Partition Coefficient: No data
pH: No data

10. STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: Strong acids, strong bases and strong oxidizing agents.

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Effects of Exposure:

ACUTE:

INHALATION - Dizziness, breathing difficulty, headaches, & loss of coordination.

EYE CONTACT - Moderate irritation, tearing, redness, and blurred vision.

SKIN CONTACT - Moderate irritant. Can dry and defat skin causing cracks, irritation, and dermatitis.

INGESTION - Can cause gastrointestinal irritation, vomiting, nausea, & diarrhea.

CHRONIC:

May affect liver, kidney and central nervous system with repeated exposure.

Acute Toxicity Data: No data.

Carcinogenicity: NTP -No, IARC -No, OSHA -No

This product has not been tested for carcinogenic effects. Some chemicals in this product may be identified by NTP, IARC and/or OSHA

MATERIAL SAFETY DATA SHEET

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as carcinogenic, indicated above as "Yes". No further information available.

Teratology: No data.

Reproduction: No data.

Mutagenicity: No data.

12. ECOLOGICAL INFORMATION

No data.

13. DISPOSAL CONSIDERATIONS

Subject to hazardous waste generation, treatment, storage and disposal under RCRA, 40CFR261. Product should be disposed of in accordance with all Federal, State and local regulations.

14. TRANSPORT INFORMATION

The following transportation information is provided based on Transtar Autobody Technologies interpretation of shipping regulations. Each shipper is responsible for identifying, naming, marking and labeling prior to offering for transport.

USA (DOT) Status: For inner packagings not exceeding 5 L each packaged in a strong outer box: CONSUMER COMMODITY ORM-D
Paint Related Material, 3, UN1263, PG II.

Water (IMDG) Status: UN1263, Paint related material, 3, PG II

Air (ICAO, IATA) Status: UN1263, Paint related material, 3, PG II

Canada (TDG) Status: For inner packagings not exceeding 5 L each packaged in a strong outer box: CONSUMER COMMODITY ORM-D
Paint Related Material, 3, UN1263, PG II

15. REGULATORY INFORMATION

The information listed in this section is not all inclusive of all regulations for this product or the chemical components of this product.

US Federal Regulations

TSCA Status: All known major components of this product are listed on the TSCA Inventory and/or are otherwise in compliance with TSCA.

SARA 302 (EHS) Status: No EHS chemicals present.

SARA 311/312 Status: Immediate Health Hazard, Delayed Health Hazard,

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Fire Hazard.

SARA 313 Status: * Indicates toxic chemical(s) subject to the reporting requirements of section 313 of Title III and of 40 CFR 372.

OSHA Status: This material meets the requirement of hazardous material and is subject to 29CFR1910.1200.

USA State Information

California Proposition 65: WARNING: This product contains chemical(s) known to the State of California to cause birth defects or other reproductive harm.

Pennsylvania RtK Status: This material contains chemical(s) subject to notification under Pennsylvania Right to Know.

New Jersey RtK Status: This material contains chemical(s) subject to notification under New Jersey Right to Know.

Massachusetts RtK Status: This material contains chemical(s) subject to notification under Massachusetts Right to Know.

Rhode Island RtK Status: This material contains chemical(s) subject to notification under Rhode Island Right to Know.

International Regulations

Canada

DSL Status: All known major components of this product are listed on the DSL Inventory and/or are otherwise in compliance with the DSL

NDSL Status: Contains no chemicals on the NDSL

WHMIS: B2D2B

EINECS Status: All components of this material are listed on the EINECS Inventory.

16. OTHER INFORMATION

To the best of our knowledge, the information contained herein is accurate, obtained from sources believed by Transtar Autobody Technologies to be accurate. As with all chemicals, KEEP AWAY FROM CHILDREN AND ANIMALS. FOR PROFESSIONAL USE ONLY. The hazard information contained herein is offered solely for the consideration of the user, subject to his own investigation and verification of compliance with applicable regulations, including the safe use of the product under every foreseeable condition.

MATERIAL SAFETY DATA SHEET

Revision 1
Prepared 2011-10-19

Section 1 - Product and Company Identification

Product Name: URETHANE REDUCER MEDIUM Product Code: 6711, 6714, 6715, 6719

TradeName(s):

Manufacturer/Supplier:
TRANSTAR AUTOBODY TECHNOLOGIES
2040 Heiserman Dr.
Brighton, MI, 48114, USA

24 Hour Emergency Phone(s):
USA 800-424-9300 (CHEMTREC)
International 001-703-527-3887 (CHEMTREC Int'l)

Business Phone: 810-220-3000
MSDS Prepared By: Transtar Autobody Technologies

Product Use: Reducer

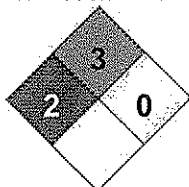
Section 2 - Composition

<u>Chemical Name / CAS No</u>	<u>OSHA Exposure Limits</u>	<u>ACGIH Exposure Limits</u>	<u>Other Exposure Limits</u>
n-Butyl Acetate 123-86-4 50 to 60% Vapor Pressure: 11.5 mmHg	150 ppm (710 mg/m3) TWA	150 ppm (710 mg/m3) TWA	
Ethyl Acetate 141-78-6 20 to 30% Vapor Pressure: 91	PEL-TWA value is 400 ppm (1,400 mg/m3).	PEL-TWA value is 400 ppm (1,400 mg/m3).	
Toluene 108-88-3 10 to 20% Vapor Pressure: 22 mm Hg	TWA = 200 ppm and a ceiling level of 300 ppm not to be exceeded at any time and a 500 ppm as a 10-minute maximum peak.	TWA of 50 ppm.	
Propylene glycol monomethyl ether acetate 108-65-6 5 to 10% Vapor Pressure: 4 mmHg	TWA 200 ppm	TWA 50ppm	

Section 3 - Hazards Identification

Note: HMIS ratings involve data and interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

HMIS Rating: 2 - 3 - 0



Routes of Entry

Inhalation

Skin Contact

Eye Contact

Ingestion

Target Organs

Eyes

Kidneys

Liver

Lungs

Nervous System

Skin

Acute Toxicity:

INHALATION - Mild irritant.

EYE CONTACT - Mild Irritant. Possible redness.

SKIN CONTACT - Mild irritant. Can dry and defat skin causing cracks, irritation, and dermatitis.

INGESTION - Mild irritant.

Effects of Overexposure, URETHANE REDUCER MEDIUM:

Short Term Exposure

The substance irritates the eyes, skin, and respiratory tract. High exposures, above the occupational exposure levels, can cause weakness, headache, and drowsiness and may cause unconsciousness. Irritates the eyes and respiratory tract. Causes central nervous system depression. High levels of exposure may cause fatigue, weakness, confusion, euphoria, dizziness, headache; dilated pupils, lacrimation (discharge of tears); nervousness, muscle fatigue, insomnia; paresthesia; cardiac dysrhythmia, unconsciousness and death may occur. Inhalation: 100 ppm exposure can cause dizziness, drowsiness and hallucinations. 100 - 200 ppm can cause depression, 200 - 500 ppm can cause headaches, nausea, loss of appetite, loss of energy, loss of coordination and coma. In addition to the above, death has resulted from exposure to 10,000 ppm for an unknown time. Skin: Can cause dryness and irritation. Absorption may cause or increase the severity of symptoms listed above. Eyes: Can cause irritation at 300 ppm. Ingestion: Can cause a burning sensation in the mouth and stomach, upper abdominal pain, cough, hoarseness, headache, nausea, loss of appetite, loss of energy, loss of coordination and coma.

Long Term Exposure

n-Butyl acetate may cause skin allergy. n-Butyl acetate has been shown to damage the developing fetus in animals. Prolonged and repeated exposure to butyl acetates can cause defatting, drying and cracking of the skin. Although many solvents and petroleum based products cause lung, brain and nerve damage, these chemicals have not been adequately evaluated to determine these effects. Repeated or prolonged contact with skin may cause dermatitis; drying, cracking, itching, and skin rash. May cause liver, kidney, and brain damage; decreased learning ability, psychological disorders. Levels below 200 ppm may produce headache, tiredness and nausea. From 200 - 750 ppm symptoms may include insomnia, irritability, dizziness, some loss of memory, cause heart palpitations and loss of coordination. Blood effects and anemia have been reported but are probably due to contamination by benzene. May decrease the fertility in males. Repeated contact can cause drying and cracking of the skin. Many similar petroleum-based chemicals can cause brain and nerve damage.

Section 4 - First Aid Measures

Seek professional medical attention for all over-exposures and/or persistent problems.

INHALATION: Remove person from area to fresh air. If breathing difficulty persists, seek medical attention.

EYE CONTACT: Flush eyes with clean water for a minimum of 15 minutes. Seek medical attention if redness persists.

SKIN CONTACT: Wash exposed area thoroughly with soap and water.

INGESTION: DO NOT INDUCE VOMITTING. Seek immediate medical attention.

Section 5 - Fire Fighting Measures

Flash Point: -4 C (25 F)

LEL: 1.1 %

UEL: 11.5 %

Extinguishing Media: Foam, Alcohol Foam, CO2, Dry Chemical, Water Fog, Other.

Unusual Fire and Explosion Hazards: Vapors can travel to a source of ignition and flash back. Closed containers may explode when exposed to extreme heat or burst when contaminated with water (CO2 gas evolved). Hazards apply to empty containers. Combustion generates toxic fumes.

Hazardous Combustion Products: Carbon monoxide, carbon dioxide, oxides of nitrogen.

Special Firefighting Procedures: Highly toxic fumes may be generated by thermal decomposition. Water runoff from firefighting

can cause environmental damage. Dike and collect water used to fight fire.

Fire Equipment: Full fire fighter equipment including SCBA should be worn to avoid skin contact and inhalation of concentrated vapors. Minimize skin exposure.

Section 6 - Accidental Release Measures

Eliminate all sources of ignition, provide adequate ventilation, dike spill area and add absorbent earth or sawdust to spilled liquid. Sweep up and dispose of in appropriate containers in accordance with Federal, State and/or Local regulations.

Section 7 - Handling and Storage

Safe Handling Measures: Use non-sparking tools and explosion proof equipment when handling this material. Avoid hot surfaces. Use in cool, well-ventilated areas. Keep containers closed when not in use. Keep away from excessive heat and open flames. Follow all MSDS/label precautions even after container is emptied because they may retain product residues.

Storage Requirements: Store in a cool area away from heat and flames. Do not reuse container when empty.

Section 8 - Exposure Control and PPE

Engineering Controls: General mechanical ventilation or local exhaust should be utilized to keep vapor concentrations below exposure limits (PEL & TLV). Ventilation equipment must be explosion proof.

Safe Work Practices: Eye washes and safety showers in the workplace are recommended. Avoid contact with skin and eyes. Avoid breathing vapors. Wash hands thoroughly after using and before eating, drinking or smoking. Employee education and training in the safe use and handling of this product is required under the OSHA Hazard Communication Standard 29CFR1200. Smoking in area where this material is used should be strictly prohibited. Always use protective clothing and equipment. Remove all contaminated clothing and wash thoroughly when finished working. Keep food and drink away from material and from area where material is being used.

Respiratory Protection: When working with this material use a MSHA/NIOSH approved cartridge respirator or suitable respiratory protection to keep airborne mists and vapor concentrations below the PEL & TLV limits. When using in poorly ventilated and confined spaces, use a fresh-air supplying respirator or a self-contained breathing apparatus.

Eye Protection: Use safety glasses with chemical splash goggles or faceshield.

Skin Protection: Use chemical resistant gloves.

Section 9 - Physical and Chemical Properties

Appearance	Clear and Colorless
Odor	Solvent
Physical State	Liquid
Vapor Density	Heavier than air
Vapor Density	3.49
Evaporation Rate	Slower than butyl acetate
Boiling Range	77 to 146 °C
Weight Percent Volatile	100.00
Specific Gravity (SG)	0.891
Regulatory Coating VOC lb/ga	7.44
Regulatory Coating VOC g/L	891
Actual Coating VOC lb/Gal	7.44
Actual Coating VOC g/L	891

Section 10 - Stability and Reactivity

Incompatible with:

Strong oxidizers

Hazardous products produced under decomposition:

Section 11 - Toxicological Information

This material has not been tested for toxicological effects.

Section 12 - Ecological Information

This material has not been tested for ecological effects.

Section 13 - Disposal Considerations

Subject to hazardous waste generation, treatment, storage and disposal. Product should be disposed of in accordance with all governmental regulations. Subject to hazardous waste generation, treatment, storage and disposal under RCRA, 40CFR261. Product should be disposed of in accordance with all Federal, State and local regulations.

Section 14 - Transportation Information

The following transportation information is provided based on Transtar Autobody Technologies interpretation of shipping regulations. Each shipper is responsible for identifying, naming, marking and labeling prior to offering for transport.

<u>Agency</u>	<u>Proper Shipping Name</u>	<u>UN Number</u>	<u>Packing Group</u>	<u>HazardClass</u>
USDOT	Paint Related Material For inner packagings not exceeding 5L each packaged in a strong outer box: Consumer Commodity ORM-D	UN1263	II	3
IATA	Paint Related Material	UN1263	II	3
IMDG	Paint Related Material	UN1263	II	3

Section 15 - Regulatory Information

The information listed in this section is not all inclusive of all regulations for this product or the chemical components of this product.

California Proposition 65

WARNING: This product contains chemical(s) known to the State of California to cause birth defects or other reproductive harm.

108-88-3 Toluene 10 to 20 %

California Proposition 65

WARNING: This product contains chemical(s) known to the State of California to cause cancer.

- None

The following are not listed under TSCA or do not meet the reporting/listing requirements under TSCA

- None

The following are reportable under SARA

108-88-3Toluene 10 - 20%

Section 16 - Other Information

To the best of our knowledge, the information contained herein is accurate, obtained from sources believed by Transtar Autobody Technologies to be accurate. As with all chemicals, KEEP AWAY FROM CHILDREN AND ANIMALS. FOR PROFESSIONAL USE ONLY. The hazard information contained herein is offered solely for the consideration of the user, subject to his own investigation and verification of compliance with applicable regulations, including the safe use of the product under every foreseeable condition.

Above Ground Storage Tanks Pollution Incident Prevention Plan (PIPP) [Ref. Michigan Part 5]

According to the Part 5 PIPP Rule, Transtar Autobody Technologies facility is both an “Oil Storage Facility” and an “On-Land Facility. According to requirements, Transtar Autobody Technologies has implemented Integrated Contingency Plan (ICP) that includes Pollution Incident Prevention Plan (PIPP), Spill Prevention, Control and Countermeasure Plan (SPCC), Storm Water Pollution Prevention Plan (SWPP), Conservation and Recovery Act (RCRA) Contingency Plan and Emergency Response. The plan was prepared in accordance with federal, state and local regulations and with good engineering practices, including considerations of applicable industry standards. The plan was reviewed in 2009 by Professional Engineer, Valerie Lachocki from TetraTech, Livonia, Michigan.

Existing Integrated Contingency Plan will be applied to Above Ground Storage Tanks. Solvent unloading, system operation and all tanks specific procedures will be reviewed and certified by Professional Engineer, Valerie Lochocki upon installation of the tanks.

The locations of the required elements and changes proposed in regards to Above Ground Storage Tanks are outlined on the PIPP Element Index below.

ABOVE GROUND STORAGE TANKS

1. MATERIALS BEING STORED

TANK 1 – ACETONE

CAS 67-64-1

NFPA 130

Flash Point 0 °F

Boiling Point 133 °F

LEL 2.6%, UEL 12.8%

Storage Volume – 4000 gallons

TANK 2 – TOULUENE

CAS 108-88-3

NFPA 230

Flash Point 40 °F

Boiling Point 231.1 °F

LEL 1.1%, UEL 7.1%

Storage Volume – 4000 gallons

TANK 3 – XYLENE

HYLENE CONCENTRATION $\geq 70\%$ - $< 80\%$ CAS 1330-20-7

ETHYL BENZENE CONCENTRATION $> 20\%$ - $< 30\%$ CAS 100-41-4

NFPA 230

Flash Point 77 °F

Boiling Point 280 °F

LEL 1.0%, UEL 6.6%

Storage Volume – 2000 gallons

TANK 4 – METHYL ISOBUTY KETONE

CAS 108-10-1

NFPA 230

Flash Point 72.99 °F

Boiling Point 240 °F

LEL 8.0%, UEL 12.0%

Storage Volume – 2000 gallons

TANK 5 – n-BUTYL ACETATE

CAS 123-86-4

NFPA 230

Flash Point 81 °F

Boiling Point 259 °F

LEL 1.2%, UEL 7.5%

Storage Volume – 2000 gallons

TANK 6 – REDUCERS (MIXED SOLVENTS)

Three different Reducers (Slow, Medium or Fast), will be stored at different times, depending on need. The reducers are compatible with each other.

MIXTURE OF : ETHYL ACETATE (1% – 65%) CAS 141-78-6; n-BUTYL ACETATE (15%-60%) CAS 123-86-4; TOLUENE (15%-25%) CAS 108-88-3; PROPYLENE GLYCOL MONOMETHYL ETHER ACETATE (5%-20%) CAS 108-65-6.

NFPA 230

Flash Point 25 °F

Boiling Point 171 °F -295 °F

LEL 1.1%, UEL 11.5%

Storage Volume – 2000 gallons

2. STORAGE TANKS

- A. New, above ground vertical, double wall steel storage tanks (UL-142). All tanks will be registered with DEQ, Storage Tank Division.
- B. Corrosion protection: Tanks and piping will be coated with corrosion resistant coating. The tanks will be lined inside with solvent resistant lining.
- C. Location: see attached diagram.

3. CONTAINMENT STRUCTURES

- A. Double walled tanks.
- B. Secondary containment consisted of impermeable concrete capable of holding 26390 gallons.
- C. Loading containment - Drum Yard Storage Containment consisting of underground storage tank capable of holding 1300 gallons.
- D. Bulk solvent unloading and system operations procedures will be followed by trained operators.

PIPP ELEMENT INDEX

PIPP Requirement	Regulatory Citation	Integrated Spill Plan Section and Description	Above Ground Storage Tanks Updates
(i) Facility name (ix) The name of the facility owner (ii) Mailing address (iii) Street Address, if other than the mailing address (iv) Facility phone number	R 324.2006 Rule 6.(1) (a)	REGIONAL ADMINISTRATOR DISCHARGE REPORT "Name of the Facility" p. 8 "Name of Owner or Operator of Facility" p. 8 "Location of Facility" p. 8	No change.
(v) 24-hour emergency phone number or numbers (vi) Internal emergency notification procedures (vii) The name of the designated spill prevention and control coordinator (viii) The name of the person or persons responsible for on-site spill prevention and control, if different than the designated spill prevention and control coordinator.	R 324.2006 Rule 6.(1) (a)	"Discharge Discovery & Response" p. 28	No change.
(x) A map showing the facility relative to the surrounding area, including thoroughfares	R 324.2006 Rule 6.(1) (a)	Appendix A-Figure 1 Site Location Map	Above ground storage tanks with their content and description will be added to the Site Location Map.

PIPP Requirement	Regulatory Citation	Integrated Spill Plan Section and Description	Above Ground Storage Tanks Updates
<p>Procedures for emergency notification of all of the following entities:</p> <ul style="list-style-type: none"> (i) MDEQ's pollution emergency alerting system (PEAS) (ii) National Response Center (iii) Local emergency planning committee (LEPC) (iv) Local fire department (v) Local law enforcement agency (vi) Municipal wastewater treatment plant if the facility is served by a municipal WWTP (vii) Appropriate spill cleanup contractor, or consulting firm, or both 	<p>R 324.2006 Rule 6.(1) (b)</p>	<p>“Discharge Discovery & Response” p.28</p>	
<p>All of the following spill control and cleanup procedures:</p> <ul style="list-style-type: none"> (i) Inventory and location of spill control and cleanup equipment available on-and off-site (ii) Procedures for response and cleanup (iii) Procedures for characterization and disposal of recovered materials 	<p>R 324.2006 Rule 6.(1) (c)</p>	<p>“Discharge Discovery & Response” p. 28, and Appendix A – Figure 2 Site Plan</p>	<p>Description of the secondary containment for the Above Ground Storage Tanks and loading area will be added. The secondary containment for the tanks will consist: double walled tanks, impermeable secondary container capable of holding gallons and Drum Yard containment containing runoff to underground holding tank. Estimated capacity of the Drum Yard Containment with underground holding</p>

PIPP Requirement	Regulatory Citation	Integrated Spill Plan Section and Description	Above Ground Storage Tanks Updates
<p>A polluting material inventory, including all of the following information:</p> <p>(i) Identification of all polluting materials typically on-site in quantities exceeding the threshold management quantity during the preceding 12 months. (Product name, chemical name, and CAS number shall identify Materials)</p> <p>(ii) The location of material safety data sheets for all polluting materials on-site in quantities exceeding the threshold management quantity</p>	<p>R 324.2006 Rule 6.(1) (d)</p>	<p>Table 1 - Material Inventory and Container Schedule, p. 14</p> <p>MSDSs (hardcopies) are available in the HSE Manager's Office, and the Fire Protection Building located adjacent to the Fire Pond.</p> <p>MSDSs are available on the website/electronic system.</p>	<p>tank is 1300 gallons.</p> <p>Tank Farm will change the amounts and locations of materials stored in the portable containers and add the materials stored in bulk. The Appendix A (Figure 2) and Material Inventory Container Schedule will be updated with locations of each above ground storage tank installed in the facility.</p>
<p>A site plan depicting relevant site structures and all storage and use areas where polluting materials are managed on-site in quantities exceeding the threshold management quantity, including any of the following:</p> <p>(i) ASTs and USTs</p> <p>(ii) Floor drains</p> <p>(iii) Loading and unloading areas</p> <p>(iv) Sumps</p> <p>(v) On-site water supplies</p>	<p>R 324.2006 Rule 6.(1) (e)</p>	<p>Appendix A - Figure 2</p>	<p>Appendix A –Figure 2 will be updated with the location of Above Ground Storage Tanks relevant to the site plan, amounts of bulk solvents stored and unloading area. Since addition of the Above Ground Storage Tanks will change the amounts and location of solvents stored in portable container, the changes will be indicated. Local Authorities will be Informed as described by ICP.</p>
<p>(f) Outdoor secondary containment structures,</p>	<p>R 324.2006</p>		<p>Tank Farm will change the amounts and</p>

PIPP Requirement	Regulatory Citation	Integrated Spill Plan Section and Description	Above Ground Storage Tanks Updates
<p>including all of the following information:</p> <p>(i) Location or locations.</p> <p>(ii) Design and construction data, including dimensions, materials, capacity, and the amount of the polluting materials stored in each area.</p>	<p>Rule 6.(1) (f)</p>	<p>Table 1 - Material Inventory and Container Schedule, p. 14</p>	<p>locations of materials stored in the portable containers and add the materials stored in bulk. The schedule will be updated with conditions that will exist after the completion of the project. Also, outdoor secondary containment structures (double walled tanks, dimensions, and capacity and construction data of secondary containment) will be updated. In addition written procedures and training of the operators operating automated storage system will take place.</p>
<p>(iii) Provisions for the capture and removal of spilled polluting materials</p> <p>(iv) Provisions for secondary containment structure physical security, including signage, gates, fences, and barriers</p> <p>(v) Precipitation management procedures, including characterization and disposal procedures and copies of any permits authorizing discharge</p>	<p>R 324.2006 Rule 6.(1) (f)</p>	<p>“Discharge Discovery & Response” p. 28, and/or</p> <p>“Site Security” p. 53</p> <p>“Precipitation Drainage” p. 56</p>	<p>Since the secondary containment will not be connected directly to storm water drainage, permit to discharge storm water from the secondary containment is not required. However, the permit and ICP will be modified to allow discharge of the precipitation with use of the manually operated sub pump to drum yard containment and then storm water drain. Accumulated in secondary containment rain water will be inspected and released to storm water drainage system or removed and disposed in accordance with local , state, and federal regulations.</p>
<p>(vi) Inspection and maintenance procedures</p>	<p>R 324.2006 Rule 6.(1) (f)</p>	<p>“Inspections, Tests, and Records” p. 50</p>	<p>Inspection procedures test and records relevant to Above Ground Storage Tanks</p>

PIPP Requirement	Regulatory Citation	Integrated Spill Plan Section and Description	Above Ground Storage Tanks Updates
		"Pipeline Inspections" p. 59	will be implemented. Tanks, pipelines and valves will be identified and labeled according to NFPA and DOT hazard classification. All terminals connections and fill line connections will be labeled as to where the pipeline is connected. All terminal and rack connections will be capped or blank flanged when not transferring product. The tanks, piping and secondary containments will be inspected visually for integrity on weekly bases. Interstitial integrity of the tanks and level alarm system will be inspected monthly. Transtar Autobody Technologies will also adhere to any required regulatory procedures and any standard procedures recommended by Professional Engineer conducting the review of PIPP.
Other controls.	R 324.2006 Rule 6.(1) (g)	"Fail-Safe Engineering Controls" p. 57	Fail-Safe Engineering Controls part will be updated with the info regarding bulk storage tanks. The tanks will be equipped with liquid level gauge and audible overfill alarm at 85% capacity and shut – off at 90%.
	R 324.2006 Rule 6.(1) (h)	"Site Security" p. 53	

Summary of the proposed control system for the solvent dispensing system at Transtar:

Multiple products (6) will be stored in outdoor storage tanks. Each product will be piped into the building and routed to multiple (4) tank mixing locations. Each product will be controlled by turning on the respective air operated pump and opening a normally closed solenoid valve. The control and metering of the system will be provided by a programmable logic controller and HMI operator interface touchscreen. Each of the four (4) dispensing stations will have independent HMI operator stations which allows the operator to select the product and quantity for dispensing. The HMI will have start/stop/pause functions to control the delivery of product.

The solenoid valves are explosion-proof failsafe normally closed valves. In the event of a power failure or initiation of an emergency shutdown pushbutton action, the pumps will stop by closing air solenoids removing air pressure from the pumps and the valves will be de-energized and close. An alarm will be reported at the main control panel and the system will require a manual reset at the main panel in order to re-start. Procedure for the operation will be written and training of the operators will take place after installation.

Key will have "product identification" or "bulk" tag and it can only open the valve with the same identification.

10. Return to the unloading station, and unlock the valve.

11. Open dome lid or vent. Open valves in line between trailer and storage tank. Start pump. Proceed with unloading.

CAUTION : During the unloading operation, delivery truck operator and/or the plant personnel maintain an unobstructed view, within 25 feet, of the transfer operation.

12. Check transfer lines for leaks.

13. Check storage tank liquid level gauge to insure liquid is being transferred.

14. When tank trailer is empty, close outlet valve, stop pump and close trailer manual valve. Close dome lid or trailer vent. Close valves in the transfer line.

15. Disconnect and walk all hoses into proper catch containers, ensuring no product is lost onto the ground. Collect the draining for proper waste disposal.

16. Secure all manholes, valves, closures in closed position and verify no leaks. Place cam lock on the valve.

17. Read Storage tank liquid level gauge and record reading.

Summary of the proposed control system for Tank Truck Unloading

NOTE:

- Before attempting to use the following procedure, operators should be thoroughly familiar with the potential hazards associated with the handling and storage of transferred materials.
- Unloading operation is attended at all times by delivery truck operator and/or plant personnel.

1. Position the trailer in a designated delivery area that includes secondary containment and secured by parking in gear, using the emergency brake, or placing blocks behind wheels.

2. Attach ground wire to tank truck.

3. Carefully check the storage tank into which the contents of the truck are to be unloaded to be certain that it contains the same chemical as chemical to be transferred.

4. Check the gauge on the storage tank to be sure that there is sufficient room to receive the entire contents of the tank truck and record it.

5. Check all "product identification" or "bulk" tags (attached to product inlet valves and tanks) to be certain that the product being unloaded is, in fact, stored in given tank.

6. Take off cam lock. Attach the unloading line. The line should be a clean, dry hose that can safely withstand unloading pressures that can safely withstand unloading pressures.

7. Make certain flexible hose is connected correctly.

8. Draw off a sample of the contents for analysis and deliver it to QC department for testing.

9. After approval of the material, QC personnel will provide delivery truck operator or plant personnel with the key to the temper lock, located on the manifold with the valves leading to the tank that the product will be transferred.

NOTE:

The storage tanks with their containment will be located inside existing fenced Drum Yard Storage Area in place of currently existing catalytic incinerator (RTO). The catalytic incinerator was taken out of service in March 2012 with the approval of Michigan Department of Environmental Quality, Air Quality Division and will be removed from the property before the projects starts.

The tanks and the pumps will be seated on concrete housekeeping pads, adjacent minimum 3 feet from each other and 10 feet from the building. The tanks will be surrounded by liquid tight, non-combustible concrete containment cell to provide for additional to double wall spill protection. The size of the containment will be 30 feet by 40 feet and 3 feet and 6 inches in height. Total capacity of the secondary containment will be 20114 gallons. The Drum Yard Storage Area is surrounded on the western and northern side of the facility by 4" curb and protected by nine foot chain-link security fence, a 10 foot concrete wall on the southern side, and 1 hour fireproof building as the eastern wall. There are vehicle and personnel gates on the western side of the Drum Yard.

There will be 3 levels of liquid containment in order to prevent any inadvertent environmental discharge. The Drum Storage Yard is the tertiary level of containment that collects storm water as well as any inadvertent discharge and was put in place for the current portable containers. The storm water containment consists of an underground holding tank and all storm water from the drum yard drains to it. The storm water vault is inspected prior to removal or release. Just to reiterate, there are two other containment areas for this project: 1. Secondary containment wall and the primary double walled tank. However, to ensure there is no discharge all collected water is pre-tested. The process is as follows: The notification that the vault is full is initiated by the mixing department by notifying the maintenance department. The maintenance department goes out to the drum yard and grabs a representative sample from the underground vault and takes the sample to Quality Control (QC). QC uses the TAT Test Method 500: Storm Water testing procedure and evaluates for color, sediment, oil, and unusual odor. If the storm water passes this means that the sample has no separation, no excessive sediment, odor, or foaming for longer than 10 seconds. QC then lets Maintenance know that the accumulated storm water in the underground holding tank can be released via a wrench valve to the storm water drainage system and Outfall 001 to the Fire Pond. If the sample fails, QC informs the maintenance and EHS departments that the test failed and the storm water is removed via pumping to tanker or container and disposed in accordance with local, state and federal regulations. The testing records are maintained by QC. The secondary containment around AST will have manually operated sub pump. Since the drain will not be directly connected to storm water drain, NPDES permit is not required. However, Transtar Autobody Technologies will update existing permit to include the change. The same procedure will be used to manage rain water as for the Drum Yard Storage Area.

The Drum Yard will also serve as secondary containment area during truck unloading. The tanker will back up into the yard through open vehicle gate. The width of the driveway leading to the yard is 20 feet and the width of the Heisserman Drive leading to it is 25 feet. From the past experience and based on tank truck turning characteristics the tanker truck can safely navigate their way to the proposed storage tanks.

Unloading of the tanker will be according to the Tank Truck Unloading Procedure (see attached). Each tank will be equipped with stainless fill tubes. The tanks and manifold will be protected from vehicle damage by installation of bollards. Each bollard will be made of 6" diameter steel pipe, filled with concrete. The bollards will be spaced no more than 4 feet from each other.

Each tank will be equipped with air diaphragm product pump. Each pump will be equipped with relief valve and positive shut off on both sides. Carbon steel, liquid tight, protected against corrosion piping will be installed and will connect tanks with the four filling stations located inside the plant. The piping system will be tested before placing in service. Any pipe support will be constructed of non combustible, galvanized material. New piping will be prime painted and finished with identifications labels. Tanks and piping will be grounded and bounded.

Dispensing of each product inside the building will be controlled by turning on the respective air operated pump and opening a normally closed solenoid valve. The control and metering of the system will be provided by a programmable logic controller and HMI operator interface touch screen. Each of the four (4) dispensing stations will have independent HMI operator stations which allow the operator to select the product and quantity for dispensing. The HMI will have start/stop/pause functions to control the delivery of product. The solenoid valves are explosion-proof failsafe normally closed valves. In the event of a power failure or initiation of an emergency shutdown pushbutton action, the pumps will stop by closing air solenoids removing air pressure from the pumps and the valves will be de-energized and close. An alarm will be reported at the main control panel and the system will require a manual reset at the main panel in order to re-start. Operating procedure will be written and operators will be trained on operation and spill prevention upon completion of installation.

MATERIALS THAT WILL BE STORED

TANK 1-ACETONE

CAS 67-64-1
NFPA 130
Flash Point 0 °F
Boiling Point 133°F
LEL 2.6%, UEL 12.8%
Storage Volume - 4000 gallon

TANK 2-TOLUENE

CAS 108-88-3
NFPA 230
Flash Point 40 °F
Boiling Point 231.1 °F
LEL 1.1%, UEL 7.1%
Storage Volume - 4000 gallon

TANK 3-XYLENE

HYLENE, CAS 1330-20-7
CONCENTRATION $\geq 70\%$ - $< 80\%$
ETHYL BENZENE, CAS 100-41-4
CONCENTRATION $> 20\%$ - $< 30\%$
NFPA 230 Flash Point 77 °F
Boiling Point 280 °F
LEL 1.0%, UEL 6.6%
Storage Volume - 2000 gallon

TANK 4-METHYLISOBUTY KETONE

CAS 108-10-1
NFPA 230
Flash Point 72.99 °F
Boiling Point 240 °F
LEL 8.0%, UEL 12.0%
Storage Volume - 2000 gallon

TANK 5 - n-BUTYL ACETATE

CAS 123-86-4
NFPA 230
Flash Point 81 °F
Boiling Point 259 °F
LEL 1.2%, UEL 7.5%
Storage Volume - 2000 gallons

TANK 6 -REDUCERS

(MIXED SOLVENTS !

Three different Reducers (Slow, Medium or Fast), will be stored at different times, depending on need. The reducers are compatible with each other.

MIXTURE OF : ETHYL ACETATE (1% - 65%) CAS 141-78-6; n-BUTYL ACETATE (15%-60%) CAS 123-86-4; TOLUENE (15%-25%) CAS 108-88-3; PROPYLENE GLYCOL MONOMETHYL ETHER ACETATE (5%-20%) CAS 108-65-6.

NFPA 230
Flash Point 25 °F
Boiling Point 171 °F -295 °F
LEL 1.1%, UEL 11.5%
Storage Volume - 2000 gallons

TRANSTAR AUTOBODY TECHNOLOGIES, INC.
2040 Heiserman Drive
Brighton, MI 48114-8969

Emergency Phone Number: (810) 220-3000

INTEGRATED SPILL PLAN

**SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN
POLLUTION INCIDENT PREVENTION PLAN
STORM WATER POLLUTION PREVENTION PLAN
RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) CONTINGENCY PLAN**

Facility Owner:
Linsalata Capital Partners
Landerbrook Corporate Center Suite 280
5900 Landerbrook Drive
Mayfield Heights, Ohio 44124

Prepared by:
Tetra Tech Inc.
710 Avis Drive
Ann Arbor, Michigan 48108

August 29, 2007

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INTEGRATED SPILL PLAN CERTIFICATIONS [REF. 40 CFR 112.3(D)]

This Integrated Spill Plan has been developed for Transtar Autobody Technologies, Inc. (Transtar) to address the requirements of the following regulations for the following plans:

- Title 40 Code of Federal Regulations (CFR) Section 112 – Spill Prevention, Control and Countermeasures (SPCC) Plan;
- State of Michigan Public Act 451 of 1994 Part 5 Rule 324.2 – Pollution Incident Prevention Plan (PIPP);
- Storm Water Pollution Prevention Plan (SWPPP) from Michigan Department of Environmental Quality (MDEQ) National Pollutant Discharge Elimination System (NPDES) Wastewater Discharge Individual Permit for Storm Water Discharges;
- Title 40 CFR Sections 261 and 264- Resource Conservation and Recovery Act (RCRA) Contingency Plan (for hazardous wastes).

This Integrated Spill Plan also addresses the following requirements for hazardous waste management, and emergency planning and notification:

- Title 40 CFR Section 302 Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended, governing notification requirements (see Emergency Response section of this plan);
- Title 40 CFR Section 355 - Superfund Amendments and Reauthorization Act (SARA) of 1986 governing emergency planning and notification (See Emergency Response section of this plan);
- State of Michigan Public Act 451 of 1994 Part III Rule governing hazardous waste management (see Emergency Response section and RCRA Contingency Plan section).

The documentation and certifications applicable to the implementation of the SPCC Plan are provided in this section and include the following:

- Management Approval/Commitment of Resources
- Certification for SPCC Plan Implementation and Amendments
- Determination of Non-Substantial Harm (Oil Pollution Prevention Act 1990)
- SPCC/PIPP Plan Review (5 and 3-year intervals respectively)

The capacities of oil and oil-related material at this facility were evaluated in accordance with the Certification of Substantial Harm criteria. This facility does not meet the criteria as a “Substantial Harm” facility and therefore is not required to prepare a Facility Response Plan (FRP).

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Management Approval

I certify that the Transtar Autobody Technologies, Inc. Integrated Spill Plan (ISP) that includes the SPCC Plan has my full approval and that I, or my designated representative, have the authority to commit the necessary resources, (i.e., monies, personnel, equipment, and/or facility design) to fully implement this Plan.

Charles Fuqua, Jr.

Name

Signature

President

Title

Date

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Professional Engineer Certification Statement

I certify the following:

- I am familiar with the requirements of the 40 Code of Federal Regulations (CFR) Section 112, effective August 2002, for a “Spill Prevention Control and Countermeasures Plan” including the March 2004 clarifications, and the 2006 amendments.
- I or my agent visited Transtar Autobody Technologies, Inc. and examined the facility;
- The plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards and the requirements of 40 CFR 112;
- Procedures for required inspections and testing have been established; and,
- The Plan is adequate for the Transtar Autobody Technologies, Inc. facility.

Signature

Valerie Lochocki, P.E.
Typed/Printed Name

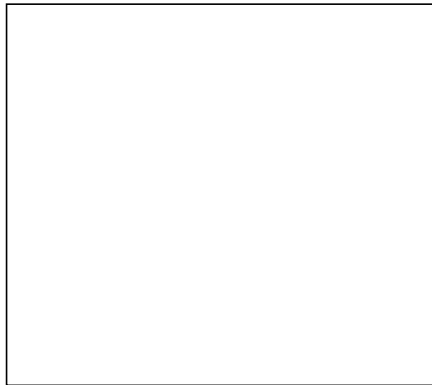
Date Plan Certified

62010 42597
Professional Engineer Certification No.

10/96
Date of P.E. Certification

Michigan
State of Certification

STAMP



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Certification of Substantial Harm Determination Form

On August 16, 2002, the U.S. EPA issued a revised rule that instructs facility owners and operators who meet the below criteria to prepare and submit plans for responding to a worst-case discharge of oil and to the substantial threat of such a discharge. Inclusion of this determination into the SPCC Plan is required by inference of the Federal SPCC regulations.

Facility Name: Transtar Autobody Technologies, Inc.
 Facility Address: 2040 Heiserman Drive, Brighton, MI 48114

1. Does the facility have a total oil storage capacity greater than or equal to 42,000 gallons and do the operations include over water transfers of oil to or from vessels?
 YES _____ NO X _____

~~3.2.~~ Does the facility have a maximum storage capacity greater than or equal to one million (1,000,000) gallons and is the facility without secondary containment for each aboveground storage area sufficiently large to contain the capacity of the largest aboveground storage tank within the storage area?
 YES _____ NO X _____

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~~4.3.~~ Does the facility have maximum storage capacity greater than or equal to one million (1,000,000) gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III of 40 CFR 112 or an alternative formula* considered acceptable by the RA) such that a discharge from the facility could cause injury to an environmentally sensitive area as defined in Appendix D of 40 CFR 112?
 YES _____ NO X _____

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~~5.4.~~ Does the facility have a max. storage capacity greater than or equal to one million (1,000,000) gallons and is the facility located at a distance (as calculated using the appropriate formula in Attachment C-III of 40 CFR 112 or alternative formula* considered acceptable by the RA) such that a discharge from the facility would shut down a public drinking water intake?
 YES _____ NO X _____

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~~6.5.~~ Does the facility have maximum storage capacity greater than or equal to one million (1,000,000) gallons and within the past 5 years, has the facility experienced a reportable spill in an amount greater than or equal to 10,000 gallons?
 YES _____ NO X _____

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* If an alternative formula is used, documentation of the reliability and analytical soundness of the alternative formula must be attached to this form.

CERTIFICATION**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

_____ Signature	_____ President Title
<u>Charles Fuqua, Jr.</u> Name (please type or print)	_____ Date

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Amendment History

Date	Amendments/Changes	PE Identification
8/5/2009	Update Table 1 of ISP to reflect containment provided by new 8" concrete slab with 4" curbing installed in the Drum Yard, and PE Certification.	

Plan Distribution

The Transtar Integrated Spill Plan will be maintained on-site and is available for review by regulatory agencies. The following list provides locations for additional copies of this plan. Copies of letters are provided in Appendix G.

Copy #	Recipient
1.	Environmental, Health, and Safety Manager Office
2.	Production Manager Office
3.	Production Supervisor
4.	Distribution Supervisor
5.	Front Desk
6.	Fire Protection Building
7.	City of Brighton Fire Department (electronic copy)
8.	Livingston County Emergency Planning Department (LEPC) (electronic copy)
9.	Brighton State police Post #12 / Brighton Police Department (electronic copy)
10.	EQ Industrial Services (electronic copy)
11.	Howell Hospital (electronic copy)

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AMENDMENT OF THE PLAN BY REGIONAL ADMINISTRATOR [REF. 40 CFR 112.4]

The owner or operator shall submit the following information within 60 days to the Regional Administrator of the U.S. EPA and to the State agency in charge of water pollution control activities (MDEQ Water Bureau) if:

- The facility has discharged more than 1,000 U.S. gallons of oil into or upon navigable waters or adjoining shorelines in a single discharge, or
- Discharged more than 42 U.S. gallons in each of two discharges of oil into or upon navigable waters or adjoining shorelines (as described in Sec. 112.1(b)) occurring within any twelve-month period.

(There are special conditions, requirements, and obligations and rights described in Section 112.4 of the regulations regarding right of the Regional Administrator to require or notify of the need for an amendment of the plan as well as the right to appeal the decision of the Regional Administrator).

Historical Spill Record

There have been no reportable spills in the last 5 years at the Transtar facility. A record of **reportable** spill events is presented in Appendix B of this Plan. The records present the date of the incident, determined cause of the incident, immediate corrective actions taken, and a discussion of preventive measures to be implemented. Appendix B will be updated within 30 days of a **reportable** spill incident. Information related to reportable spills will be kept for at least 5 years.

The following form indicates the information that must be submitted to the Regional Administrator within 60 days from the time that the facility becomes subject to this requirement. This form may be filled out and used as the Reportable Spill Event Report:

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REGIONAL ADMINISTRATOR DISCHARGE REPORT (40 CFR 112.4(a))

Name of the Facility [Ref. 40 CFR 112.4(a)(1)]		Transtar Autobody Technologies, Inc.	
Facility Classification:		Onshore Non-Production	
Name of Owner or Operator of Facility [Ref. 40 CFR 112.4(a)(2)]		Linsalata Capital Partners Landerbrook Corporate Center Suite 280 5900 Landerbrook Drive Mayfield Heights, Ohio 44124	
Location of Facility [Ref. 40 CFR 112.4(a)(3)] Mailing Address:		2040 Heiserman Drive Brighton, MI 48114-8969	
Street Address:		2040 Heiserman Drive Brighton, MI 48114-8969	
	<i>Degrees</i>	<i>Minutes</i>	<i>Seconds</i>
Latitude (North)	42	34	16
Longitude (West)	83	48	36
Facility Phone Number:		Phone: (810) 220-3000 Fax: (810) 220-3053	
North American Industry Classification Code (NAICS)		32551 (Paints and Coating Manufacturing)	
SIC Code	2851 (Paints, Varnishes, Lacquers, Enamels, and Allied Products)		
Maximum Storage or Handling Capacity of the Facility [Ref. 40 CFR 112.4(a)(4)]			
Bulk Oil/oil-related material Container Total:		5,700 gallons	
Mobile Oil/Oil-related Material Container Total:		86,300 gallons (based on inventory estimates which may vary)	
Operating Equipment Total:		N/A	
Maximum Storage/Handling Capacity:		92,000 gallons (includes empty containers capacities and varying inventory estimates)	
Normal Daily Throughput:*		Approximately 15,000 gallons per operating day	
* Document method for throughput estimation- This has been estimated from the following:			
<ul style="list-style-type: none"> Amount of paints and solvents purchased and brought on site and the amount of paints/solvents manufactured during each month divided by 30 days (see Raw Material Consumption Tables) 			
Facility Description [Ref. 40 CFR 112.4(a)(6)]			
Startup Date:		Opened in 1995.	
Employee Number/Number of Shifts (hours of operation)		Approximately 65 employees working one shift 8AM to 5 PM Daily (no weekends)	

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Facility (Building) Size (in square feet)	Facility: 67,000 square feet Warehouse: 61,600 square feet Mixing Room: 5,400 square feet Filling Room: 3,600 square feet Storage Yard: 12,500 square feet Hazardous Waste: 90 square feet
Property Size (in acres)	10 acres
<p>Location Description: The Transtar Autobody Technologies, Inc. site is located in a mixed industrial/commercial/residential area approximately 1 mile north of Interstate 96 and less than ¼ mile north of Grand River Avenue on Heiserman Drive in Brighton, Livingston County, Michigan. The facility is bordered to the west by Heiserman Drive and another industrial facility, to the north by forested area and rural residential properties, to the east by Euler Road and commercial and rural residential areas, and to the south by Pless Road and mixed industrial and commercial properties. A site location map showing the surrounding area is included in Appendix A as Figure 1. Employees access the facility via the employee entrance on the western side of the building which has a key punch for a security code. Visitors access the facility via another entrance on the western side of the building located south of the employee entrance. Vehicles can access the facility through the Shipping Dock on the southern side of the facility off Pless Road, a Receiving Dock on the northern side of the building and a gate for the Drum Storage Yard on the western side of the facility. Employee and visitor parking are located on the western side of the facility.</p>	
<p>Description of Processes: The Transtar Autobody Technologies, Inc. facility which consists of the 10 acre property on which the building is located also includes ownership of a Fire Pump building on an easement south of the property immediately north of a Fire Pond. This Transtar facility manufactures automotive refinishing/aftermarket products including undercoatings, sealants, coatings, full line plastic repair, compounds, glazes, adhesives, waxes, polishes, cleaners, paint additives, and automotive paints including volatile organic compound (VOC) compliant clearcoats and primers. The manufacturing operation includes intermediate bulk containers (IBCs) or tote, drum, portable tank, and bag storage. These containerized materials are processed in the production area into the finished materials that are stored in drums, bulk containers, and consumer packages. A facility plot plan showing the access routes to the site, property line, on-site buildings, and areas where oil, oil-related materials and polluting materials are transferred or stored is included as Figure 2 located in Appendix A. The facility has four general areas:</p> <p>Shipping and receiving; Storage; Production operations; Administration offices.</p>	
EPA ID Number	MIR000010116
Storm Water General Permit	MI0056988
Certificate of Coverage for Storm Water	MIR15L003 (Expiration Date: October 2011)

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Additional Information

Corrective actions and countermeasures taken, including a description of equipment repairs and replacements [Ref. 40 CFR 112.4(a)(5)]:

Cause(s) of discharge(s), including a failure analysis of the system or subsystem in which the failure occurred [Ref. 40 CFR 112.4(a)(7)]:

Additional preventive measures the facility has taken or contemplated to minimize the possibility of recurrence [Ref. 40 CFR 112.4(a)(8)]:

Such other information as the Regional Administrator may reasonably require pertinent to the Plan or discharge [Ref. 40 CFR 112.4(a)(9)]:

(The aforementioned information with the complete SPCC Plan and figures shall be submitted to the following:

- U.S. EPA Regional Administrator (under 40 CFR 112.4(a); and
- State agency or agencies in charge of oil pollution control activities (MDEQ Water Bureau) under 40 CFR 112.4(c). See “Agency Notification” section in this plan.

See additional requirements for amending the plan under the Amendment of SPCC Plans by Owners or Operators Section.)

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AMENDMENT OF SPCC PLANS BY OWNERS OR OPERATORS [REF. 40 CFR 112.5]

Owners or operators have three obligations with respect to amending the SPCC Plan:

- 1) Amendments made to the SPCC Plan shall be prepared within six months and implemented as soon as possible, but no later than six months following the preparation of the amendment. The SPCC Plan shall be amended whenever there is a change in:
 - Facility design;
 - Construction;
 - Operation or maintenance, which materially affects the potential for discharge of oil.

Note: Examples of changes that require amendments of the Plan include, but are not limited to: commissioning or decommissioning containers; replacement, reconstruction, or movement of containers or piping systems; construction or demolition that might alter the secondary containment structures; change of product or service; or revision of standard operation or maintenance procedures at a facility.

- 2) (40 CFR 112.5(b)) The SPCC Plan shall be reviewed by the owner or operator at least once every five years. (This review is not certified by a Professional Engineer). The owner must amend the plan to include more effective prevention and control technology if evaluation of the plan shows that:
 - The technology will significantly reduce the likelihood of a spill event; and
 - The technology has been field proven.
- 3) (40 CFR 112.5(c)) If the plan is amended, it must be certified by a Professional Engineer in accordance with 40 CFR 112.3(d). If re-certification is necessary, a new certification page shall be sealed and signed and inserted into the plan. If there is a question whether the change is technical or non-technical, it is recommended that the revision should be re-certified. All revisions must be noted in the SPCC Plan Review Log Sheet and Amendment History included in this plan.

Note: The following additions or revisions to the Plan are not considered amendments to the Plan and do not require certification by a Professional Engineer:

- Changes to the Storage Tank Information, which do not significantly effect the potential to discharge oils;
- Updates to the Plan’s contact list names and telephone numbers;
- Product changes, if the new product is compatible with conditions in the existing tank and containment; and/or
- More stringent requirements for storm water discharges to comply with NPDES rules.

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SPILL PREVENTION, CONTROL, AND COUNTERMEASURE PLAN (SPCC PLAN)

The spill prevention control and countermeasures employed for oils and oil-related materials are presented in the following sections. This Plan has been written for the Transtar facility to address the requirements of the following federal, state, and local regulations regarding pollution prevention and planning:

- 40 CFR 112 for SPCC Plans which became effective in August 2002, clarified in March 2004, and amended in December 2006,
- State of Michigan Part 5 Rule 324.2 for Pollution Incident Prevention Plans (PIPP) which was revised and effective in August 2001 (See Table 4 under the PIPP tab for information regarding how individual requirements of the PIPP rule are addressed in this plan),
- Storm Water Pollution Prevention Plan (SWPPP) from Michigan Department of Environmental Quality (MDEQ) National Pollutant Discharge Elimination System (NPDES) Wastewater Discharge General Permit for Storm Water Discharges;
- Title 40 CFR 261 and 264 Resource Conservation and Recovery Act (RCRA) for Contingency Plan (for hazardous waste),
- Title 40 CFR Section 302 Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended, governing notification requirements,
- Title 40 CFR Section 355 - Superfund Amendments and Reauthorization Act (SARA) of 1986 governing emergency planning and notification; and,
- State of Michigan Public Act 451 of 1994 Part III Rule governing hazardous waste management.

General Requirements/Format for SPCC [Ref. 40 CFR 112.7(a)(1-2)]

This SPCC Plan has been written to detail how the Transtar facility will conform to SPCC requirements in the same order they are presented in the August 2002 SPCC Rule (40 CFR 112); therefore, no cross-reference table is necessary.

Additional Facilities or Procedures, Methods, or Equipment Not Yet Fully Operational

Based on the information provided, the Plan calls for the following facilities, procedures, methods, or equipment not yet fully operational that must be completed by the deadline for implementation of the SPCC Plan (which is October 31, 2007):

1. Implementation of container integrity testing and inspection procedures and checklists based on the requirements outlined in Table 2 found under the “Other Plan Requirements” tab.
2. Identification and training of “Oil-handling Personnel” for the requirements of 40 CFR 112.
3. Creation and completion of RCRA and SWPPP training for applicable personnel.

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Physical Facility Layout [Ref. 40 CFR 112.7(a)(3)]

The facility layout/site plan is detailed in Figure 2. The site plan is included in Appendix A. Figure 2 includes as applicable:

- Location, contents, and capacities of each applicable container, including completely and partially buried tanks;
- Transfer stations;
- Location of spill kits,
- Location of Fire extinguishers and emergency communication around hazardous waste storage areas, and
- Piping for non-edible oil-related materials (connecting).

Container Storage Capacity and Content Oil Type [Ref. 40 CFR 112.7(a)(3)(i)]

The capacity of each applicable container and its contents has been identified on Table 1.

Discharge Prevention Measures [Ref. 40 CFR 112.7(a)(3)(ii)]

Practices, procedures, and other measures to prevent discharge of applicable materials have been identified on Table 1 for each applicable container and contents.

Discharge or Drainage Controls [Ref. 40 CFR 112.7(a)(3)(iii)]

Measures designed to control drainage or discharge has been identified on Table 1 for each applicable container and contents.

Evaluation of Discharge Potential [Ref. 40 CFR 112.7(a)(5) & Ref. 40 CFR 112.7(b)]

The SPCC regulations require that the Plan include a prediction of the direction, rate of flow, and total quantity of oil that could be discharged where experience indicates a reasonable potential for equipment failure.

Descriptions of bulk load/unload locations and container/containment locations at this facility, which present reasonable potential for a spill or catastrophic failure, are provided in Table 1. Table 1 also presents locations and information for the operating equipment with oil and oil-related material, containers of polluting materials for PIPP requirements, and hazardous waste storage areas for RCRA. The prediction of the direction, the rate of flow, and total material is included in the descriptions.

Some product and cleaning solvent materials have been identified as PIPP due to the mixed content that includes different and varying polluting materials. Mix tanks are used in batching different products at different times; therefore they may contain any number of chemicals consisting of polluting materials.

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Structural Controls BS = Blind Sump C = Covered CC = Containment Curbing DP = Drip Pan DW = Double Walled G = Grading P = Paving PMe = Prevent. Measures S = Sump/Floor Drain SC = Secondary Containment SM = Spill Mat TD = Trench Drain San = Sanitary Drain SK = Spill Kit AT = Aboveground Tank	Nonstructural Controls A = Attendant CI = Comprehensive Inspection ET = Employee Training GH = Good Housekeeping I = Inspections IT = Integrity Testing MR = Managed Runoff PMA = Preventative Maint. SEC = Sediment/Erosion Control SPR = Spill Prevention & Response P = Procedure
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TABLE 1 – MATERIAL INVENTORY AND CONTAINER SCHEDULE

Mixing Room Containers (interior)

Mobile Containers –At Ambient Temperature and Pressure (Unless Noted)

Tag	Material (Product / Chemical Name)	DOT Hazard Class & CAS #	SPCC/ PIPP/ RCRA Material	Location	Container	Containment Capacity	Engineering Devices	Structural Controls	Non-structural Controls	Discharge Path / Flow Rate
A.1	Flammable Product (in process being mixed and individually packaged)	3 N/A	SPCC/ PIPP	Mixing Room Northeastern Corner Interior	(1) 2,500-gal. Single Wall Steel AST	Contained inside Mixing Room and Building	Visual Gauge	C, P, SC, SK	I	1. Path- A discharge from the tank or associated fill/drain valves would release to the building floor. 2. Flow rate- 200 gpm. 3. A discharge to the building floor would flow across floor and either remain in building until cleaned up or flow out personnel or garage door to exterior Drum Storage Yard.
A.2	Flammable Product (in process being mixed and individually packaged)	3 N/A	SPCC/ PIPP	Mixing Room Northeastern Corner Interior	(1) 2,200-gal. Single Wall Steel AST	Contained inside Mixing Room and Building	Visual Gauge	C, P, SC, SK	I	1. Path- A discharge from the tank or associated fill/drain valves would release to the building floor. 2. Flow rate- 200 gpm. 3. A discharge to the building floor would flow across floor and either remain in building until cleaned up or flow out personnel or garage door to exterior Drum Storage Yard.
A.3	Flammable Product (in process being mixed and individually packaged)	3 N/A	SPCC/ PIPP	Mixing Room Northeastern Corner Interior	(1) 1,000-gal. Single Wall Steel AST	Contained inside Mixing Room and Building	Visual Gauge	C, P, SC, SK	I	1. Path- A discharge from the tank or associated fill/drain valves would release to the building floor. 2. Flow rate- 100 gpm. 3. A discharge to the building floor would flow across floor and either remain in building until cleaned up or flow out personnel or garage door to exterior Drum Storage Yard.
A.4	Flammable Product (in process being mixed and individually packaged)	3 N/A	SPCC/ PIPP	Mixing Room Central Interior	(15) 550-gal. Steel Mix Tank with Plastic Lids	Contained inside Mixing Room and Building	Visual Gauge	C, P, SC, SK	I	1. Path- A discharge from a tank would release to the building floor. 2. Flow rate- 100 gpm. 3. A discharge to the building floor would flow across floor and either remain in building until cleaned up or flow out personnel or garage door to exterior Drum Storage Yard.
A.5	Butyl acetate-normal	3 123-86-4	SPCC/ PIPP	Mixing Room Eastern Interior	(1) 55-gal. Steel Drums	Contained inside the Mixing Room Interior	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
A.5	Butyl acetate-urethane grade	3 123-86-4	SPCC/ PIPP	Mixing Room Eastern Interior	(3) 55-gal. Steel Drums	Contained inside the Mixing Room Interior	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.

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Tag	Material (Product / Chemical Name)	DOT Hazard Class & CAS #	SPCC/ PIPP/ RCRA Material	Location	Container	Containment Capacity	Engineering Devices	Structural Controls	Non-structural Controls	Discharge Path / Flow Rate
A.5	Macrynal SM515/70 BAC Acrylic copolymer (n-butyl acetate)	3 123-86-4	SPCC/ PIPP	Mixing Room Eastern Interior	(4) 55-gal. Steel Drums	Contained inside the Mixing Room Interior	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
A.5	Xylene Urethane Grade	3 1330-20-7	SPCC/ PIPP	Mixing Room Eastern Interior	(4) 55-gal. Steel Drums	Contained inside the Mixing Room Interior	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
A.6	Hazardous Waste (e.g. Ignitable/ flammable)	3 N/A	SPCC/ PIPP/ RCRA	90-day Haz- Waste Storage Area on Southern Mixing Room Interior	(6) 55-gal. Steel Drums	(5) 110-gal. Poly Drum Containment Pallets inside Mixing Room Interior	Visual Inspection	C, SC, P, SK	I	1. Path- A discharge from the containers would release to the associated drum pallet and/or the floor of the building. 2. Flow rate- 50 gpm. 3. Discharge to containment pallet or building floor would remain there until cleaned up.

Fill Room Containers (interior)

Mobile Containers –At Ambient Temperature and Pressure (Unless Noted)

Tag	Material (Product / Chemical Name)	DOT Hazard Class & CAS #	SPCC/ PIPP/ Slug/ RCRA Material	Location	Container	Containment Capacity	Engineering Devices	Structural Controls	Non-structural Controls	Discharge Path / Flow Rate
B.1	Various Flammable Solvents (for cleaning/reuse)	3 N/A	SPCC/ PIPP	Fill Room Southern Interior	(4) 55-gal. Steel Drums	Contained inside the Fill Room	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
B.2	Hazardous Waste Accumulation (Flammable Liquid)	3 N/A	SPCC/ PIPP/ RCRA	Fill Room Eastern Interior	(1) 55-gal. Steel Drum	Contained inside the Fill Room	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.

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Warehouse

Aboveground Containers –At Ambient Temperature and Pressure (Unless Noted)

Tag	Material (Product / Chemical Name)	DOT Hazard Class & CAS #	SPCC / PIPP/ SWPPP/ RCRA Material	Location	Container	Containment Capacity	Engineering Devices	Structural Controls	Non- structura l Controls	Discharge Path / Flow Rate
C.1	Joncryl 587 50% in Acetone	3 N/A	SPCC	Warehouse Interior	(41) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Acetyl Acetone	3 67-64-1	SPCC/ PIPP	Warehouse Interior	(4) 55-gal. Steel Drums,	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	AU-1033 Acryloid (Ethylbenzene, Naphtha)	3 100-41-4 8030-30-6	SPCC/ PIPP	Warehouse Interior	(19) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	AU-608S Acryloid Resin (Toluene)	3 108-88-3	SPCC/ PIPP	Warehouse Interior	(2) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Setalux 27-1597 (2- Heptanone, styrene)	3 110-43-0 100-42-5	SPCC/ PIPP	Warehouse Interior	(12) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Asphalt Cutback 6052-55	3 N/A	SPCC	Warehouse Interior	(1) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Carboset GA-2123 (Acrylic polymer)	N/A 2634-33-5	N/A	Warehouse Interior	(1) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Dibutyl Phthalate (n-butyl phthalate)	3 84-74-2	PIPP	Warehouse Interior	(4) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.

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Tag	Material (Product / Chemical Name)	DOT Hazard Class & CAS #	SPCC / PIPP/ SWPPP/ RCRA Material	Location	Container	Containment Capacity	Engineering Devices	Structural Controls	Non-structural Controls	Discharge Path / Flow Rate
C.1	EPS 6862 (Xylene, ethylbenzene, toluene)	3 1330-20-7, 100-41-4, 108-88-3	SPCC/ PIPP	Warehouse Interior	(6) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Ester Solvent EEP Urethane Grade	3 763-69-9	SPCC/ PIPP	Warehouse Interior	(10) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Exxate 600 Urethane Grade (Acetate ester)	3 8823-35-7	SPCC/ PIPP	Warehouse Interior	(1) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Glycol Ether EB	3 25322-68-3	SPCC/ PIPP	Warehouse Interior	(29) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Hexane	3 110-54-3	SPCC/ PIPP	Warehouse Interior	(1) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Joncryl 901 (Methyl n-amyl ketone)	3 110-43-0	SPCC	Warehouse Interior	(1) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Joncryl 909	3 110-43-0	SPCC	Warehouse Interior	(35) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Joncryl SCX-920 (Methyl n-amyl ketone)	3 110-43-0	SPCC	Warehouse Interior	(3) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Macopol HS 214/ 2122 (Xylene, ethylbenzene, methyl n-amyl ketone)	3 1330-20-7, 100-41-4, 110-43-0	SPCC/ PIPP	Warehouse Interior	(7) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.

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Tag	Material (Product / Chemical Name)	DOT Hazard Class & CAS #	SPCC / PIPP/ SWPPP/ RCRA Material	Location	Container	Containment Capacity	Engineering Devices	Structural Controls	Non- structura l Controls	Discharge Path / Flow Rate
C.1	Methyl Amyl Ketone	3 110-43-0	SPCC	Warehouse Interior	(5) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Methyl Ethyl Ketone Urethane Grade	3 78-93-3	SPCC/ PIPP	Warehouse Interior	(5) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Methyl Isobutyl Ketone	3 108-10-1	SPCC/ PIPP	Warehouse Interior	(5) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	N-Butyl Acetate Urethane Grade	3 123-86-4	SPCC/ PIPP	Warehouse Interior	(29) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	PCBTF Solvent Oxsol (Benzene 1-Chloro- 4 trifluoromethyl)	3 98-56-6	SPCC	Warehouse Interior	(16) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	P M Acetate Urethane Grade (Propylene glycol ether ester)	3 108-65-6	PIPP	Warehouse Interior	(1) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Rhoplex WL-96 Acrylic Styrene copolymer Aqua ammonia	3 100-42-5 1336-21-6	PIPP	Warehouse Interior	(38) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Setalux 17-1447 (Butyl acetate, ethyl benzene, styrene)	3 123-86-4 100-41-4 1330-20-7	SPCC/ PIPP	Warehouse Interior	(21) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Setalux 17-1609D (Toluene, methyl methacrylate)	3 108-88-3, 80-62-6	SPCC/ PIPP	Warehouse Interior	(9) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.

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C.1	Setalux 7202 XX-50 (Acrylic resin-ethyl benzene, xylene)	3 100-41-4 1330-30-7	SPCC/ PIPP	Warehouse Interior	(19) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Macrynal SM515/70 BAC Acrylic copolymer (n-butyl acetate)	3 123-86-4	SPCC/ PIPP	Warehouse Interior	(7) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Solucote 1313 Polyurethane polymer (Dimethylethanolamine, n-methyl pyrrolidone)	3 108-01-0 872-50-4	SPCC	Warehouse Interior	(12) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Tolonate HDT-90 (Hexane 1,6 Diisocyanato homopolymer, Butyl acetate, Trimethylbenzene)	3 82-81-2 123-86-4 95-63-6	SPCC/ PIPP	Warehouse Interior	(2) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Toluene Urethane Grade	3 108-88-3	SPCC/ PIPP	Warehouse Interior	(5) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Vebra Vestanate T1890L (n-Butyl acetate, naphtha)	3 123-86-4, 64742-95-6	SPCC/ PIPP	Warehouse Interior	(26) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Vestanate HB2640/100 (hexamethylene diisocyanate)	3 822-06-0	PIPP	Warehouse Interior	(10) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Macrynal VSM 1004/75LGV2 Acrylic copolymer (Methyl acetate, Ethyl 3-ethoxypropionate)	3 79-20-9	SPCC	Warehouse Interior	(9) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Xylene Urethane Grade	3 1330-20-7	SPCC/ PIPP	Warehouse Interior	(10) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm.

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										3. A discharge or spill will remain on the floor until cleaned up.
C.1	Phosphoric Acid	3	PIPP	Warehouse Interior	(2) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Miscellaneous Drum Solvents including AU1166, Joncryl 920, S-395-SP5, Setalux 10-1440, Vestanat HB 2640/100, Vestanat HT 2500, Transtar Slow Reducer, 4373 Chlorinated poly Olefins White Tex Coat Carbon Choke Cleaner	3	SPCC/ PIPP	Warehouse Interior	(220) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Miscellaneous Polymers, Coatings, Adhesives including Hydroflex	3	N/A	Warehouse Interior	(26) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Various Oils including A1015 Oil, Heat Transfer Oil	3	SPCC	Warehouse Interior	(3) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Various Solvent (alcohol or non-petroleum) including 95% Ethanol, N-butyl alcohol Ethyl acetate	3	PIPP	Warehouse Interior	(3) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.1	Various Cleaners including D-Limonene, Sanitizer 160	8	N/A	Warehouse Interior	(2) 55-gal. Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until

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										cleaned up.
C.1	Various Non-hazardous Materials including Chisorb 328, Cerafak 100	N/A	Not regulated by SPCC/PIPP	Warehouse Interior	(10) 55-gal. Fiber Drums, (10) 55-gal. Steel Drums	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.2	Bentone 34 (crystalline silicate quartz)	N/A N/A	Note regulated by ISP regs.	Warehouse Interior	Pallet 50-lb Bags Powder Solid	Contained inside the Warehouse Building area	N/A	C, P	N/A	N/A
C.2	Cimbar EX (Barium sulfate)	N/A N/A	Not regulated by ISP regs.	Warehouse Interior	Pallet 50-lb Bags Powder Solid	Contained inside the Warehouse Building area	N/A	C, P	N/A	N/A
C.2	Tiona RCL-9	N/A N/A	Not regulated by ISP regs.	Warehouse Interior	Pallet 50-lb Bags Powder Solid	Contained inside the Warehouse Building area	N/A	C, P	N/A	N/A
C.2	Vantalc Materials (Hydrous magnesium silicate mineral)	N/A N/A	Not regulated by ISP regs.	Warehouse Interior	Pallet 50-lb Bags Powder Solid	Contained inside the Warehouse Building area	N/A	C, P	N/A	N/A
C.3	Empty Totes	N/A N/A	SPCC	Warehouse Interior	(23) 550-gal. (5) 478-gal. (1) 350-gal. Steel Totes	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.4	Empty Mix Tanks for process use	N/A N/A	SPCC	Warehouse North-Central Interior	(2) 1,000-gal. (9) 550-gal. (4) 330-gal. (4) 165-gal. Steel Mix Tanks with Plastic Lids	Contained inside Warehouse Area and Building	Visual Gauge	C, P, SC, SK	I	1. Path- N/A. 2. Flow rate- N/A gpm. 3. N/A
C.5	Methyl n-amyl ketone	3 110-43-0	SPCC	Warehouse Interior	(2) 350-gal. Steel Totes	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 100 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.5	Transtar Product Reducer	3	SPCC/ PIPP	Warehouse Interior	(1) 550-gal. Steel Totes	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 100 gpm. 3. A discharge or spill will remain on the floor until cleaned up.

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C.5	Transtar Product 9781 Acrysolvent	3	SPCC/ PIPP	Warehouse Interior	(1) 550-gal. Steel Totes	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 100 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.5	Ashlnd Urethane Reduce-Fast (Solvent) And Reducer Slow	3	SPCC/ PIPP	Warehouse Interior	(1) 550-gal. Steel Tote (1) 550-gal. Steel Tote	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 100 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.5	Paraloid AU6086	3	SPCC/ PIPP	Warehouse Interior	(5) 350-gal. Steel Totes	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 100 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.5	UV Additive (D3002)	3	SPCC/ PIPP	Warehouse Interior	(1) 350-gal. Steel Totes	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 100 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
C.5	Petroleum Distillates	3	SPCC	Warehouse Interior	(1) 350-gal. Steel Totes	Contained inside the Warehouse Building area	Visual Inspection	C, P, SC, SK	I	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 100 gpm. 3. A discharge or spill will remain on the floor until cleaned up.

Battery Charging Area

Aboveground Containers –At Ambient Temperature and Pressure (Unless Noted)

Tag	Material (Product / Chemical Name)	DOT Hazard Class & CAS #	SPCC / PIPP Material	Location	Container	Containment Capacity	Engineering Devices	Structural Controls	Non-structural Controls	Discharge Path / Flow Rate
C.6	Sulfuric Acid/Lead	8 7664-93-9	PIPP	Throughout the facility	5 Forklifts w/ 3,000 lb. Batteries (each has approximately 80 gallons acid)	Paved Surface in Building provides >80 gal. containment	Visual Inspection	C, P, SK	I, Operator	1. Path- A discharge from the batteries would release to building floor, outside Drum Yard pavement to holding tank, or if on docks or in trailer potentially to Shipping or Receiving Dock drains. 2. Flow rate- 50 gpm. 3. Drainage in the Drum Yard lead to the Holding Tank. Drains in the dock lead to the Fire Pond.

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Drum Yard

Aboveground Containers –At Ambient Temperature and Pressure (Unless Noted)

Tag	Material (Product / Chemical Name)	DOT Hazard Class & CAS #	SPCC / PIPP/ SWPPP Material	Location	Container	Containment Capacity	Engineering Devices	Structural Controls	Non-structural Controls	Discharge Path / Flow Rate
D.1	Acetone	3 67-64-1	SPCC/ PIPP/ SWPPP	Drum Yard	(48) 55-gal. Steel Drums,	Containment consists of 4-inch containment curbing, 10-foot wall, and cinderblock building wall.	Visual Inspection	CC, P, G to 200-gal. holding tank with "T" wrench valve, SK	I, CI	1. Path- A discharge from a container would release to the Drum Yard pavement. 2. Flow rate- 50 gpm. 3. A discharge or spill will flow across pavement to the holding tank.or be contained by the concrete curbing around the perimeter of the drum yard.
D.1	Asphalt Cutback 6052-55	3 N/A	SPCC	Drum Yard	(1) 275-gal. Poly/Steel Cage Tote	Containment consists of 4-inch containment curbing, 10-foot wall, and cinderblock building wall.	Visual Inspection	CC, P, G to 200-gal. holding tank with "T" wrench valve, SK	I, CI	1. Path- A discharge from a container would release to the Drum Yard pavement. 2. Flow rate- 50 gpm. 3. A discharge or spill will flow across pavement to the holding tank.or be contained by the concrete curbing around the perimeter of the drum yard.
D.1	Asphalt and Mineral Spirits	3 N/A	SPCC	Drum Yard	(12) 55-gal. Steel Drums	Containment consists of 4-inch containment curbing, 10-foot wall, and cinderblock building wall.	Visual Inspection	CC, P, G to 200-gal. holding tank with "T" wrench valve, SK	I, CI	1. Path- A discharge from a container would release to the Drum Yard pavement. 2. Flow rate- 50 gpm. 3. A discharge or spill will flow across pavement to the holding tank.or be contained by the concrete curbing around the perimeter of the drum yard.
D.1	Heptane	3 142-82-5	SPCC/ SWPPP	Drum Yard	(5) 55-gal. Steel Drums	Containment consists of 4-inch containment curbing, 10-foot wall, and cinderblock building wall.	Visual Inspection	CC, P, G to 200-gal. holding tank with "T" wrench valve, SK	I, CI	1. Path- A discharge from a container would release to the Drum Yard pavement. 2. Flow rate- 50 gpm. 3. A discharge or spill will flow across pavement to the holding tank.or be contained by the concrete curbing around the perimeter of the drum yard.
D.1	Hexane	3 110-54-3	SPCC/ PIPP/ SWPPP	Drum Yard	(17) 55-gal. Steel Drums	Containment consists of 4-inch containment curbing, 10-foot wall, and cinderblock building wall.	Visual Inspection	CC, P, G to 200-gal. holding tank with "T" wrench valve, SK	I, CI	1. Path- A discharge from a container would release to the Drum Yard pavement. 2. Flow rate- 50 gpm. 3. A discharge or spill will flow across pavement to the holding tank.or be contained by the concrete curbing around the perimeter of the drum yard.
D.1	Isopropanol	3 67-63-0	PIPP/ SWPPP	Drum Yard	(6) 55-gal. Steel Drums	Containment consists of 4-inch containment curbing, 10-foot wall, and cinderblock building wall.	Visual Inspection	CC, P, G to 200-gal. holding tank with "T" wrench valve, SK	I, CI	1. Path- A discharge from a container would release to the Drum Yard pavement. 2. Flow rate- 50 gpm. 3. A discharge or spill will flow across pavement to the holding tank.or be contained by the concrete curbing around the perimeter of the drum yard..
D.1	Joncryl C214 J00400	3 N/A	SPCC/ SWPPP	Drum Yard	(10) 55-gal. Steel Drums	Containment consists of 4-inch containment curbing, 10-foot wall, and cinderblock building wall.	Visual Inspection	CC, P, G to 200-gal. holding tank with "T" wrench valve, SK	I, CI	1. Path- A discharge from a container would release to the Drum Yard pavement. 2. Flow rate- 50 gpm. 3. A discharge or spill will flow across pavement to the holding tank.or be contained by the concrete curbing around the perimeter of the drum yard.

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D.1	K-1 Kerosene	3 N/A	SPCC/ PIPP/ SWPPP	Drum Yard	(2) 55-gal. Steel Drums	Containment consists of 4-inch containment curbing, 10-foot wall, and cinderblock building wall.	Visual Inspection	CC, P, G to 200-gal. holding tank with "T" wrench valve, SK	I, CI	1. Path- A discharge from a container would release to the Drum Yard pavement. 2. Flow rate- 50 gpm. 3. A discharge or spill will flow across pavement to the holding tank.or be contained by the concrete curbing around the perimeter of the drum yard.
D.1	Methanol	3 67-56-1	PIPP/ SWPPP	Drum Yard	(4) 55-gal. Steel Drums	Containment consists of 4-inch containment curbing, 10-foot wall, and cinderblock building wall.	Visual Inspection	CC, P, G to 200-gal. holding tank with "T" wrench valve, SK	I, CI	1. Path- A discharge from a container would release to the Drum Yard pavement. 2. Flow rate- 50 gpm. 3. A discharge or spill will flow across pavement to the holding tank.or be contained by the concrete curbing around the perimeter of the drum yard.
D.1	Methyl Ethyl Ketone Urethane Grade	3 78-93-3	SPCC/ PIPP/ SWPPP	Drum Yard	(11) 55-gal. Steel Drums	Containment consists of 4-inch containment curbing, 10-foot wall, and cinderblock building wall.	Visual Inspection	CC, P, G to 200-gal. holding tank with "T" wrench valve, SK	I, CI	1. Path- A discharge from a container would release to the Drum Yard pavement. 2. Flow rate- 50 gpm. 3. A discharge or spill will flow across pavement to the holding tank.or be contained by the concrete curbing around the perimeter of the drum yard.
D.1	Methyl Isobutyl Ketone	3 108-10-1	SPCC/ PIPP/ SWPPP	Drum Yard	(30) 55-gal. Steel Drums	Containment consists of 4-inch containment curbing, 10-foot wall, and cinderblock building wall.	Visual Inspection	CC, P, G to 200-gal. holding tank with "T" wrench valve, SK	I, CI	1. Path- A discharge from a container would release to the Drum Yard pavement. 2. Flow rate- 50 gpm. 3. A discharge or spill will flow across pavement to the holding tank.or be contained by the concrete curbing around the perimeter of the drum yard.
D.1	Mineral Spirits	3 N/A	SPCC/ PIPP/ SWPPP	Drum Yard	(2) 55-gal. Steel Drums	Containment consists of 4-inch containment curbing, 10-foot wall, and cinderblock building wall.	Visual Inspection	CC, P, G to 200-gal. holding tank with "T" wrench valve, SK	I, CI	1. Path- A discharge from a container would release to the Drum Yard pavement. 2. Flow rate- 50 gpm. 3. A discharge or spill will flow across pavement to the holding tank.or be contained by the concrete curbing around the perimeter of the drum yard.
D.1	Toluene Urethane Grade	3 108-88-3	SPCC/ PIPP/ SWPPP	Drum Yard	(46) 55-gal. Steel Drums	Containment consists of 4-inch containment curbing, 10-foot wall, and cinderblock building wall.	Visual Inspection	CC, P, G to 200-gal. holding tank with "T" wrench valve, SK	I, CI	1. Path- A discharge from a container would release to the Drum Yard pavement. 2. Flow rate- 50 gpm. 3. A discharge or spill will flow across pavement to the holding tank.or be contained by the concrete curbing around the perimeter of the drum yard.
D.1	UMP Naphtha	3 91-20-3	SPCC/ PIPP/ SWPPP	Drum Yard	(10) 55-gal. Steel Drums	Containment consists of 4-inch containment curbing, 10-foot wall, and cinderblock building wall.	Visual Inspection	CC, P, G to 200-gal. holding tank with "T" wrench valve, SK	I, CI	1. Path- A discharge from a container would release to the Drum Yard pavement. 2. Flow rate- 50 gpm. 3. A discharge or spill will flow across pavement to the holding tank.or be contained by the concrete curbing around the perimeter of the drum yard.
D.1	Xylene Urethane Grade	3 1330-20-7	SPCC/ PIPP/ SWPPP	Drum Yard	(22) 55-gal. Steel Drums (2) 400-gal. Steel Totes	Containment consists of 4-inch containment curbing, 10-foot wall, and cinderblock building wall.	Visual Inspection	CC, P, G to 200-gal. holding tank with "T"	I, CI	1. Path- A discharge from a container would release to the Drum Yard pavement. 2. Flow rate- 50 gpm. 3. A discharge or spill will flow across pavement to the

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						wall		wrench valve, SK		holding tank.or be contained by the concrete curbing around the perimeter of the drum yard.
D.1	Undercoat Container-Toluene	3 108-88-3	SPCC/ PIPP/ SWPPP	Drum Yard	(1) 500-gal. Steel Tote	Containment consists of 4-inch containment curbing, 10-foot wall, and cinderblock building wall	Visual Inspection	CC, P, G to 200-gal. holding tank with "T" wrench valve, SK	I, CI	1. Path- A discharge from a container would release to the Drum Yard pavement. 2. Flow rate- 50 gpm. 3. A discharge or spill will flow across pavement to the holding tank.or be contained by the concrete curbing around the perimeter of the drum yard.
D.2	Nitrocellulose	1 N/A	N/A	Drum Yard Southwestern Shed	(25) 55-gal. Fiber Drums	Containment consists of 4-inch containment curbing, 10-foot wall, and cinderblock building wall	Visual Inspection	CC, P, G to 200-gal. holding tank with "T" wrench valve, SK	I, CI	1. Path- A discharge from a container would release to the Drum Yard pavement. 2. Flow rate- 50 gpm. 3. A discharge or spill will flow across pavement to the holding tank.or be contained by the concrete curbing around the perimeter of the drum yard.
D.3	Empty	N/A N/A	SPCC	Drum Yard	((8) 330-gal. Poly/Steel Cage Totes	Containment consists of 4-inch containment curbing, 10-foot wall, and cinderblock building wall	Visual Inspection	CC, P, G to 200-gal. holding tank with "T" wrench valve, SK	I, CI	1. Path- A discharge from a container would release to the Drum Yard pavement. 2. Flow rate- 50 gpm. 3. A discharge or spill will flow across pavement to the holding tank.or be contained by the concrete curbing around the perimeter of the drum yard.
D.4	Storm Water Runoff	N/A N/A	SWPPP	Drum Yard	(1) 200-gallon	Containment consists of 4-inch containment curbing, 10-foot wall, and cinderblock building wall	Visual Inspection	CC, P, G	I, CI	1. Path- A discharge or overflow from the tank would release to the Drum Yard pavement. 2. Flow rate- 50 gpm. 3. A discharge or spill will flow across pavement to the holding tank.or be contained by the concrete curbing around the perimeter of the drum yard.

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Other Interior Containers

Mobile Containers –At Ambient Temperature and Pressure (Unless Noted)

Tag	Material (Product / Chemical Name)	DOT Hazard Class & CAS #	SPCC/ PIPP/ Slug/ RCRA Material	Location	Container	Containment Capacity	Engineering Devices	Structural Controls	Non-structural Controls	Discharge Path / Flow Rate
E	Acetic Acid	8 64-19-7	PIPP/ SWPPP	Garage- Western Building Interior	(1) 55-gal. Poly Drum	Inside Garage	Visual Inspection	C, P, SK	I, CI	1. Path- A discharge from a container would release to the building floor with no floor drains. 2. Flow rate- 50 gpm. 3. A discharge or spill will remain on the floor until cleaned up.
F	Aerosol Product container storage	3 N/A	N/A	Aerosol Room on Southeastern Building Interior	Boxes of Product Awaiting Purchase and Shipment	N/A	Visual Inspection	C, P, SK, Sprinkler System	I	N/A

Transformers (These transformers are under ownership of local utility and are included here and on map for informational purposes only)

Aboveground Containers –At Ambient Temperature and Pressure (Unless Noted)

Tag	Material (Product / Chemical Name)	DOT Hazard Class & CAS #	SPCC/ PIPP/ Material	Location	Container	Containment Capacity	Engineering Devices	Structural Controls	Non-structural Controls	Discharge Path / Flow Rate
G.1	Transformer Oil	N/A N/A	SPCC/ PIPP/ SWPPP	DTE Substation – On Exterior between building and Pless Road	(1) Approx. <300-gal. Steel Transformer	N/A- On Concrete DTE Transformer Pad	Not Available	C, P	N/A	1. Path- A discharge from the transformer would release to transformer concrete pad and ground. 2. Flow rate- 100 gpm. 3. Area drains to ground.
G.2	Transformer Oil	N/A N/A	SPCC/ PIPP/ SWPPP	On west side exterior of building in parking lot	(1) Approx. <300-gal. Steel Transformer	N/A- On Concrete	Not Available	P	N/A	1. Path- A discharge from the transformer would release to paved parking lot then to storm drain in middle or parking lot. 2. Flow rate- 100 gpm

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Exterior Storm Water Sources (non-liquid container related)

Mobile Containers –At Ambient Temperature and Pressure (Unless Noted)

Tag	Material (Product / Chemical Name)	DOT Hazard Class & CAS #	SPCC/ PIPP/ RCRA Material	Location	Source Description	Containment Capacity	Structural Controls	Non-structural Controls	Discharge Path / Flow Rate
H	Paints/Solvents	3 N/A	SWPPP	Mixing Room and Drum Yard	Tracking by Forklifts of Containers and Materials from Mixing Room to Drum Yard	Drum Yard Containment	CC, P, SK, D to Holding Tank	I, CI, GH, PM	1. Path- Tracking by forklifts from floor of Mixing Room to Drum Yard may carry minor spilled material to Drum Yard. 2. Storm water runoff would carry this material to the holding tank in the Drum Yard.
I	Catalytic Incinerator	N/A N/A	SWPPP	Drum Yard Eastern Exterior	Particulate Emissions from Startup of Incinerator	Drum Yard Containment	CC, P, SK, D to Holding Tank	I, CI, GH, PM	1. Path- Startup and operation of incinerator may release particulate emissions to Drum Yard pavement. 2. Storm water runoff would carry this material to the holding tank in the Drum Yard.
J	General Trash	N/A	SWPPP	Shipping Dock on Southern Exterior	General Trash Bin Emptying occurs to Waste hauler Outside	N/A	A, P	I, CI, GH	1. Path- Transfer of general trash bins to the waste hauling truck on the Shipping Dock could release general trash to the dock area and storm drains. 2. Storm water runoff would carry this material to Outfall 001 and the Fire Pond.
K	Oil, grease, and miscellaneous solids from semitrailer parking	N/A	SWPPP	Receiving Dock, Pavement North of Building, and Drum Yard	Semitrailers containing empty drums for product use, roller conveyors, and bamboo mixing sticks/cabinets	N/A	P	I, CI, GH	1. Path- Storm water contact with semitrailers could carry oil/grease from grease fittings and hydraulic oil hoses or particulate from trailer to pavement and storm drains. 2. Storm water runoff would carry this material to Outfall 001 and the Fire Pond.
L	Roof	N/A N/A	SWPPP	Facility Roof	Roof of building with stacks	N/A	N/A	I, CI	1. Path- Storm water contact with emissions from stacks could carry particulates/paints down to storm drains. 2. Storm water runoff would carry this material to Outfall 001 and the Fire Pond.
M	Various Chemicals (flammable solvents and paints)	3 Various	SPCC/ PIPP/ SWPPP	Receiving and Shipping Docks	Container handling at the Shipping and Receiving Docks	N/A	CC, G, P	A, I, CI, SK, GH	1. Path- Storm water contact with discharges from container handling on the dock may flow across inner dock area to exterior dock. Overflow of containment curbing around storm drains would carry discharge to storm drains. 2. Storm water runoff would carry this material to Outfall 001 and the Fire Pond.

Comment [ARW1]: Perhaps insert a calculation sheet for PIPP / SPCC materials that shows how TOTAL #'s were derived.

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EMERGENCY RESPONSE

Discharge Discovery & Response [Ref. 40 CFR 112.7(a)(3)(iv)]

SPILL RESPONSE CONTACTS		
Primary Contact/Emergency Response Coordinator: John Papon Title: R & D Chemist	Via internal phone paging system/Public address (PA) phones or Walkie talkies/Intrinsically safe radios or Office Phone (internal): 810-220-3008	After Hours: 517-545-0534 Home Address: 3868 Beckley Drive Howell, MI 48855-7304
Designated Emergency Hazardous Materials Response Coordinator/Spill Prevention and Control Coordinator: Kathy Straccia, Health, Safety, and Environmental Manager	Via internal phone paging system/Public address (PA) phones or Walkie talkies/Intrinsically safe radios or Office Phone: 810-220-3007	After Hours: Cell: 630-550-6689 Home Address: 4429 Hunt Club Drive Ypsilanti Twp., MI 48197

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This Integrated Spill Plan includes descriptions for emergency response based on procedures from the internal Emergency Response Plan (ERP) which is utilized for all internal operations in the handling of an emergency. There are three levels of emergency situations that require response by Transtar personnel or outside agencies. Transtar has an active Hazardous Materials Emergency Response Team (ERT) for preventing migration of chemical spills. The ERT operates under the ERP and an ISP; a controlled copy of the ERP is available in the HSE Manager's Office. When an emergency incident occurs, the personnel at the scene shall assess the spill or emergency and classify it as one of the following levels requiring response:

1. **Minor:** A "minor" emergency situation, typically a small chemical spill, is one that can be controlled and corrected by departmental personnel in which the emergency situation occurs. A minor chemical spill is not more than 5 gallons or has little or no impact to surrounding processes.

Initial Response: Personnel at the scene shall immediately shut down all equipment adjacent to the spill and after obtaining and donning the proper personal protective equipment shall begin cleanup of the spill using departmental supplies of absorbent pads or materials. A list of available emergency equipment is provided in this section.

2. **Moderate:** A "moderate" emergency is one in which the emergency situation cannot be controlled by ERT Team and the Emergency Response Plan (ERP) is put into action. "Moderate" emergencies may include fire/explosions, chemical spills, hazardous waste spills, personal injury, and severe weather. The ERP is contained as Appendix F.

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Initial Response: During a moderate emergency, the personnel at the scene shall immediately activate the Emergency Response Team (ERT) and Emergency Response Coordinators through the signaling system or the fire alarm.

3. **Major:** A "major" emergency is one in which outside assistance is required. A major emergency may include fire/explosion, chemical spills, hazardous waste spills, personal injury, and severe weather. These emergencies may require outside equipment including backhoe or bulldozer, fire equipment supplied by local Fire Departments and chemical clean-up equipment supplied by EQ, the authorized spill clean-up company.

Initial Response: During a moderate emergency, the personnel at the scene shall immediately activate the Emergency Response Team (ERT) and Emergency Response Coordinators through the signaling system or the fire alarm.

NOTE: A spill of any hazardous waste is considered moderate or major and requires activation of the Emergency Response Coordinators.

For all spills or emergencies, personnel notifying the plant of an emergency including notification of the Emergency Response Coordinator shall go to the nearest phone and dial "60" to activate the plant paging system and identify the emergency with the following codes which are communicated to employees via handout in Appendix B:

Code 1 – Fire or use the traditional manual fire alarm actuators

Code 2 – Personnel

Code 3 – Spill

Code 4 –Weather

Personnel issuing an emergency code shall state, "ERT to (location) Code____." and repeat the message five times. The person closest to a phone should announce the code over the PA system.

Personnel issuing an internal emergency notification shall be prepared to provide the following information:

- Name of notifier;
- Location of spill/incident;
- Time of spill discovery;
- Chemical identification by product name or type;
- Estimated quantity or volume of spill;
- Source of the spilled material;
- Cause of spill;
- Number and type of injuries and number of people involved;

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- Any actions completed to contain the spill or to prevent fire or explosion potential; and
- Name and phone number of person reporting spill.

The Emergency Coordinator shall assess the emergency situation to confirm the level of hazard of the emergency and will also include an evaluation of the following:

- Exact location of the incident;
- Identify of the source and material;
- Amount of material;
- Associated hazards of the incident; and
- The possible hazards to human health and the environment that may result from a spill, fire, or explosion. The assessment must consider both direct and indirect effects of a spill, fire or explosion.

1 For moderate or major emergencies including moderate or major spills, personnel at the scene shall:

1.1 If the following can be done without posing risk to themselves or others:

1.1.2 Designate the area for cleanup to warn others away from the hazard;

1.1.3 Take reasonable measures to stop the emergency from increasing in magnitude (e.g. contain spill, remove ignition sources, extinguish a fire, etc.). Containment of a spill can be completed using the proper PPE and departmental supplies of absorbent pads or materials.

1.2 Evacuate the area immediately. The in-plant evacuation meeting point is the Research and Development Laboratory. The off site evacuation meeting point for a plant-wide evacuation is the corner of Heiserman Drive and Pless Road unless the evacuation is due to fire and the wind is from the northeast. In the aforementioned case, the Emergency Response Coordinator will designate a new meeting point and ensure every one assembles (See the Evacuation Route Map in the RCRA Contingency Plan section.)

2 When the ERT and Emergency Response Coordinator arrive, they will assume command of the emergency.

3 If the Emergency Response Coordinator determines that the facility has had a spill, fire or explosion which could threaten human health or the environment outside the plant, the Emergency Response Coordinator will:

3.1 Notify affected personnel of the emergency situation;

3.2 Contact Transtar President if the Emergency Response Coordinator requires contractor support.

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3.3 Call the cleanup contractor (if necessary) to assist or conduct spill cleanup at the following number:

EQ Industrial Services 24 hour Emergency (800) 839-3975
2701 N. I-94 Service Drive
Ypsilanti, MI 48198

3.4 If necessary, notify appropriate federal, state, and/or local agencies with designated rolls per the Agency Notification section of this ISP to complete the required reporting.

4 The Emergency Response Coordinator will use preventative measures to reduce the risk that spills, fires and explosions do not spread to other areas of the plant.

5 If operations must be stopped, the Emergency Response Coordinator will monitor for leaks, pressure buildup, gas generations or ruptures in valves, pipes, or other equipment.

6 The Emergency Response Coordinator will ensure that no incompatible materials are allowed in the affected area during the emergency.

7 If called for actual or potential fire or explosion or large spill, the following agencies will assume the following responsibilities:

7.1 The Brighton Fire Department will be given tactical command by the Transtar Emergency Response Coordinator. The Transtar Emergency Response Coordinator will continue to remain in control of the Transtar ERT who will provide technical expertise regarding specific hazards associated with the fire, spill or explosion.

7.2 The Michigan State Police will assume control of local traffic and if necessary will assist in evacuating potentially threatened areas. Brighton Police Department may assist as well.

7.3 The first State agency or the Livingston County Emergency Management Department (EPD) to arrive on the scene will assume operational control until the State agency having primary responsibility for the major threat reports to the scene. At that time, operational control will be transferred to the agency which is responsible.

8 If the response is large enough to require establishment of a command post, all personnel are to coordinate activities through the on-site command post.

9 All personnel shall be evaluated to determine if any medical attention is needed.

After all spills, the Emergency Response Coordinator will provide for the proper treatment, storage and disposal of recovered waste, contaminated soil, surface water, and other materials that result from the emergency situation. All residues must be removed to return the area to its original condition as much as possible.

All emergency equipment will be decontaminated, replaced and/or restocked, as necessary, prior to resumption of operations.

The Emergency Response Coordinator will complete the necessary post-emergency reporting per the Agency Notification section of this ISP. In addition, an incident report using the MDEQ Spill or Release Report in

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Appendix B or similar format will be filed with the Health, Safety and Environmental Manager's office and will be, for reportable spills, retained for at least 5 years.

All future reportable spill events at the facility will be recorded on the form (included in Appendix B) within 30 days of the event. Specific information regarding the nature, cause and reporting action taken for any future spill event will be recorded on this spill reporting form. Spill reporting activities as outlined in this section of the SPCC portion of this Integrated Spill Plan are not considered to be a substantive change requiring amendment and re-certification.

Emergency equipment including fire response and alarm equipment and summary of containment/disposal equipment to be utilized for containment and cleanup of incidental spills by facility personnel are included on Table 2. The detailed list of spill containment equipment available at the site is included in Appendix C as the following inspections/list of equipment:

- Emergency Response Equipment Department Inventory
- Emergency Response Station Inventory
- Emergency Response Self-Contained Breathing Apparatus (SCBA) Inspections

The following table and the aforementioned lists include the location within the facility of the equipment, a physical description of each item, capabilities or limitations, and quantities on hand. Physical locations of emergency equipment are shown on Figure 2, the Integrated Spill Plan Site Plan. The lists are maintained by the Emergency Response Team (ERT) during monthly inspections and after any emergency utilizing the equipment.

Table 2
Emergency/Spill Response Equipment

Emergency Equipment	Number	Location	Description	Capabilities
Fire Extinguishers	>38	Throughout Plant	Type A, B, C	For wood, paper, textile, oil, paint and electrical equipment fires
Fire Alarms	6	Throughout Plant	Manual Pull Alarm Actuator	For Fires, Explosions or other emergencies. Notification to ADT
Sprinkler System	N/A	In Drum Rack in Warehouse Interior	Automatically Actuated Sprinkler System	For fires; Notification to ADT
Spill Kits	12	Throughout Plant	Plastic bags, spill pillows, pig socks, safety glasses	For paint, solvent and organic liquid spills
Acid Spill Kit	3	Western Side of Mixing Room, At Receiving Dock, and on Southern Side of Warehouse	Acid absorbent material, PPE	For corrosive material spills including acids
Spill Mats/Drain Covers	2	Shipping and Receiving Docks	Spill Mats/Drain Covers	For paints, solvents, and organic liquid spill migration

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Emergency Equipment	Number	Location	Description	Capabilities
				prevention
Fire Hydrants	4	Various locations on exterior of plant	Fire Hydrants	Use by Fire Department to put out fires

At all times there is one Emergency Response Coordinator either on the plant site or on call with the responsibility for coordinating all emergency response measures. The Emergency Response Coordinators are familiar with all aspects of this ISP and the facilities' Emergency Response Plan, all operations and activities at the plant, the location and characteristics of materials handled, the locations of all records at the plant and the plant layout. All Emergency Response Coordinators have the authority to commit the resources needed to carry out the Contingency Plan.

EQ, located at 2701 North I-94 Service Drive, Ypsilanti, Michigan 48174, has personnel trained in confined space entry and stand-by rescue, U.S. DOT shipping, truck driving (CDL State-issued licenses), heavy equipment operations, OSHA 40-hour HAZWOPER, OSHA Bloodborne Pathogens, Red Cross First Aid/CPR, and Hazardous Materials Emergency Response for Personal Protective Equipment for levels A through D). MPC maintains the following equipment for responding to a spill: vactors, vacuum trucks/tankers, jet rodders, tank trailers, sewer jet units, sewer snake trucks, waterblasters, hazardous drum trucks, crawlers, mobiles, bulldozers, backhoes, respiratory equipment, confined space equipment, fall protection equipment, drums, absorbent pads, and rolls.

Methods of Disposal of Recovered Materials [Ref. 40 CFR 112.7(a)(3)(v)]

All spilled material, as well as contaminated equipment that cannot be decontaminated and reused such as rags, absorbents, gloves, or other disposable equipment will be placed in compatible containers (5-gallon pails and 55-gallon drums) for storage. The materials will be treated as waste products, sampled and analyzed if necessary, and disposed appropriately in accordance with appropriate Federal and State of Michigan waste regulations. Disposal will involve the shipment of the waste by a licensed hauler to an approved disposal facility for reuse, recycling, or other appropriate disposal methods.

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Agency Notification [Ref. 40 CFR 112.7(a)(3)(vi) & 40 CFR 112.7(a)(4)]

If the Emergency Response Coordinator determines that the facility has had a discharge which could threaten human health or the environment outside the facility, the Emergency Response Coordinator must proceed with notifications as follows:

1. If the assessment indicates that evacuation of local areas may be advisable, the coordinator must immediately notify appropriate local authorities per the emergency response plan/procedures. The coordinator must be available to help appropriate officials decide whether local areas should be evacuated.
2. The Coordinator must immediately classify the type of spill/release/emergency response and make the appropriate notifications according to this section. Information to provide to agencies/regulators includes:
 - Name and telephone number of reporter;
 - Name and location of the facility;
 - Time and type of incident (e.g. release, fire);
 - Name and quantity of material(s) involved, to the extent known;
 - Extent of any injuries, if any;
 - Possible hazards to human health or the environment outside the facility; and
 - Cleanup activities being conducted to contain and control the release.
3. The facility insurance company should be notified within five (5) working days of an accident at:

Verlan
8401 Colesville Road
Suite 110
Silver Springs, MA 20910

Copies of all reports must accompany a formal Emergency Investigation Report (EIR), completed by the Coordinator. The EIR must be signed by the General Manager/President, Department Managers and Supervisors (for areas involved), Emergency Response Coordinator, and the HSE Manager. Copies of all reports must be sent to:

Transtar, Inc.
Manish Batra, Vice President of Operations
7350 Young Drive
Cleveland, OH 44146
Phone 216-232-5100

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Facsimile 216-232-7898

4. The Coordinator must complete necessary verbal and written notifications based on the following per 40 CFR 112 for SPCC, Part 5 for PIPP, and/or other federal and state regulations:

- a. **SPCC for Oil:** If an oil or oil-related material has reached a navigable body of water and (1) violates a water quality standard or, (2) causes a sheen upon or discoloration of the surface of navigable waters or sludge or emulsion to be deposited beneath the surface of waters, immediately call:
- National Response Center (NRC) (800) 424-8802
40 CFR 110.3, 40 CFR 110.6, 33 USC 1321, 40 CFR 302.6
 - MDEQ District Office (during business hours) 517-335-6010
MDEQ PEAS (S.E.R.C.) (after hours) or 800-292-4706
40 CFR 355.40(b)(1), R324.2007, R299.9306(d)
 - Livingston County EPD/Sheriff's Department via 911
40 CFR 355.40(b)(1) or 517-546-2440
 - Brighton Fire Department via 911
40 CFR 355.40(b)(1) or 517-229-6640
 - Livingston County Department of Public Health 911
R299.9306(i), R324.2007 or 517-546-9858

Whenever there is a discharge of oil to navigable waters of the U.S. of either 1,000 gallons in a single event, or more than 42 U.S. gallons in each of two discharges within a twelve month period, a submission according to 40 CFR 112.4(a) must be made to the U.S. EPA Regional Administrator within sixty (60) days. The report must contain the following information:

- Name of the facility;
- Name(s) of the owner or operator of the facility;
- Name of person submitting the report;
- Location of the facility;
- Maximum storage or handling capacity of the facility and normal daily throughput;
- Description of the facility, including maps, flow diagrams, and topographical maps;
- Copy of the facility's Spill Prevention Control and Countermeasures Plan (SPCC) with any amendments;
- The cause(s) of the spill, including a failure analysis of the system or subsystem in which the failure occurred;

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- The corrective actions and/or countermeasures taken, including an adequate description of equipment repairs and/or replacements;
- Additional preventative measures taken or contemplated to minimize the possibility of recurrence; and
- Any other additional information specifically required by the Regional Administrator pertinent to the Plan or spill event.

The completed submittal should be sent to:

U.S. EPA Regional Administrator
U.S. EPA Region V
77 W. Jackson Boulevard
Chicago, IL 60604-3507
Phone: 312-353-2000
Toll Free: 800-621-8431

MDEQ
Lansing Michigan District Office
Water Bureau
525 West Allegan (Constitutional Hall, 4th Floor, North)
P.O. Box 30242
Lansing, MI 48909-7742

Livingston County Department of Public Health
East Complex
2300 East Grand River, Suite 102
Howell, MI 48843-7580

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- b. **PIPP for Polluting Materials:** Whenever there is a release of any of the following Threshold Reporting Quantities:
- i. 50 pounds or more of oil to the surface of the ground,
 - ii. Any quantity of oil that causes unnatural turbidity, color, visible sheens, oil films, foams, solids, or deposits in the receiving water body,
 - iii. 50 pounds of salt in solid form to the surface of the ground or waters of the state UNLESS the use is authorized by the MDEQ as a dust suppressant, deicing agent, or permitted under Part 31 of the Act, OR
 - iv. Quantities of Polluting Materials specified in Table 1 in Part 5 Rule 324.2009 or any quantity that causes unnatural turbidity, color, visible sheens, oil films, foams, solids, or deposits in the receiving water body,
 - v. Discharge of 1,000 gallons or more of Polluting Materials into a Secondary Containment and/or Recovery is not initiated within 24 hours of Detection or Completed within 72 hours or a discharge to waters or public sewers occurs.

The Coordinator must immediately notify the following:

- MDEQ District Office (during business hours) 517-335-6010
MDEQ PEAS (S.E.R.C.) (after hours) or 800-292-4706
40 CFR 264.56(a)(2), R299.9306(d)
- Livingston County EPD/Sheriff's Department via 911
40 CFR 264.56(a)(2), 40 CFR 264.56(d)(1) or 517-546-2440
- Brighton Fire Department (if necessary)
R324.2007, R299.9306(i) 911/517-229-6640
- Livingston County Department of Public Health via 911
R324.2007, R299.9306(i) or 517-546-9858

The Coordinator must submit a written report to the Michigan Department of Environmental Quality (MDEQ) Chief of the Water Bureau within 10 days or as required by the Department according to Part 5 Rule. The report should include the following information:

- Type and quantity of materials released;
- Bodies of water involved;
- Cause of the release;
- How the incident was discovered;
- Remedial/response actions taken to remove the oil from waters of the State;
- Time schedule for cleaning up any remaining released material; and

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- Actions that will be taken to prevent a recurrence of similar releases.

The report can be in the facility's format as long as it contains the necessary information or be in the format of the "Spill or Release Report" form found on the Michigan Department of Environmental Quality's (MDEQ) website and in Appendix B.

Send the completed report to:

MDEQ
Lansing Michigan District Office
Water Bureau District Supervisor
525 West Allegan (Constitutional Hall, 4th Floor, North)
P.O. Box 30242
Lansing, MI 48909-7742

Livingston County Department of Public Health
East Complex
2300 East Grand River, Suite 102
Howell, MI 48843-7580

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c. When any product, by-product, intermediate product, oils, solvents, waste material, or other polluting substance spills or is lost to any surface waters or ground waters of the state, the permittee must immediately notify:

- MDEQ District Office (during business hours) 517-335-6010
MDEQ PEAS (S.E.R.C.) (after hours) or 800-292-4706
R299.9306(d), General Permit
- Livingston County Department of Public Health 911
R324.2007, R299.9306(i) or 517546-9858

Within 10 days of the spill or loss, the permittee shall submit to the MDEQ District Supervisor, a full written explanation including the following descriptions:

- 1) A description of the discharge, discovery and cause of spill or noncompliance,
- 2) The period of noncompliance/spill including exact dates and times,
- 3) Cleanup and recovery measures completed,
- 4) Preventative measures and other steps to be completed to eliminate or prevent a recurrence of the noncomplying discharge or spill, and
- 5) Schedule of implementation or timeframe for when the noncompliance issue will be resolved.

Report shall be submitted to:

MDEQ
Lansing Michigan District Office
Water Bureau District Supervisor
525 West Allegan (Constitutional Hall, 4th Floor, North)
P.O. Box 30242
Lansing, MI 48909-7742

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d. **Hazardous Waste:** If the facility has a fire, explosion, or other release of hazardous waste which could threaten human health or the environment outside the facility as defined in 40 CFR 262.34(d)(5)(iv)(C), immediately call:

- National Response Center (NRC) 800-424-8802
40 CFR 302.6(a)
- MDEQ District Office (during business hours) 586-753-3700
MDEQ PEAS (SERC) (after hours) or 800-292-4706
40 CFR 264.56(a)(2), R299.9306(d)
- Livingston County EPD/Sheriff's Department via 911
40 CFR 264.56(a)(2), 40 CFR 264.56(d)(1) or 517-546-2440
- Brighton Fire Department/Police Department 911
40 CFR 264.34
- Livingston County Department of Public Health 911
R324.2007, R299.9306(i)

Within fifteen (15) days after a release, fire, or explosion involving hazardous wastes that required implementation of the facility's Contingency Plan (i.e., incident could threaten human life or the environment, or it is known that the spill has reached surface water or groundwater), a written report of the incident must be submitted to the Director of the Michigan Department of Environmental Quality (MDEQ). The report must include:

- Name, address, and telephone number of the facility.
- USEPA or Michigan identification number for hazardous waste generators.
- Date, time and type of incident (e.g. fire, spill, etc.).
- Type and Quantity of material(s) released.
- Extent of injuries, if any.
- An assessment of any actual or potential hazards to human health or the environment.
- Procedures followed to reduce and remove released materials.
- Estimated quantity and disposition of the recovered material that resulted from the incident.

The written report must be sent to:

Steven E. Chester, Director
Michigan Department of Environmental Quality
PO Box 30473
Lansing, Michigan 48909-7973

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It is recommended by MDEQ that the report also is sent to:

Michigan Department of Environmental Quality
Waste Management Division
PO Box 30028
Lansing, Michigan 48909

The Emergency Response Coordinator/Spill Prevention and Control Coordinator should provide assurance, through records and other documentation, that no waste incompatible with the released material has been treated, stored, or disposed of until cleanup procedures were completed, and that all emergency equipment listed in this Integrated Spill Plan has been cleaned and is fit for its intended use prior to resumption of operations. Both the MDEQ and appropriate local authorities should receive notification to this effect.

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- e. **Extremely Hazardous Substances:** If the facility has a release of a CERCLA Designated Hazardous Substance or mixture or a SARA Extremely Hazardous Substance or mixture equal to or greater than the Reportable Quantity (see Reportable Quantity List on line at <http://www.epa.gov/ceppo/pubs/title3.pdf>), immediately call:

- National Response Center (NRC) 800-424-8802
40 CFR 302.6
- MDEQ District Office (during business hours) 517-335-6010
MDEQ PEAS (S.E.R.C.) (after hours) or 800-292-4706
40 CFR 355.40(b)(1), R299.9306 (d)
If release is less than the Reportable Quantity but discharged into a waterway the S.E.R.C. still requires notification within 24 hours.
- Livingston County EPD via 911
40 CFR 355.40 (b)(1) or 517-546-2440
- Brighton Fire Department (if needed) 911
R299.9306(i)

As soon as practical after the release of a reportable quantity of an extremely hazardous substance is verbally reported, typically within fifteen (15) days, a written follow-up emergency notice must be provided to the LEPC (Livingston County EPD) and SERC. This notice must include and update the information that was provided during the initial verbal notification of the emergency plus the following additional information:

- Actions that were taken to respond to and contain the release.
- Any known or anticipated acute or chronic health risks associated with the release.
- Where appropriate, advice regarding medical attention that will be necessary for any exposed individuals.

This written notice must be sent to:

State Emergency Response Commission
Section 304 Emergency Notification
Michigan SARA Title III Coordinator
Michigan Department of Environmental Quality
PO Box 30028
Lansing, Michigan 48909

and sent to:

MDEQ
Lansing Michigan District Office
Water Bureau District Supervisor
525 West Allegan (Constitutional Hall, 4th Floor, North)

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P.O. Box 30242
Lansing, MI 48909-7742

and sent to:

Livingston County Emergency Planning Department
Central Dispatch Building
300 South Highlander Way
Howell, MI 48843
Phone; 517-646-4620

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- f. **Storm Water:** At the time of discharge, there shall be no violation of the Water Quality Standards in the receiving waters as a result of the storm water discharge. This requirement includes, but is not limited to, the following conditions:
- In accordance with Rule 323.1050 of the Water Quality Standards, the receiving waters shall not have any of the following unnatural physical properties as a result of this discharge in quantities which are or may become injurious to any designated use: unnatural turbidity, color, oil film, floating solids, foams, settleable solids, suspended solids, or deposits.
 - Any unusual characteristics of the discharge (i.e. unnatural turbidity, color, oil film, floating solids, foams, settleable solids, suspended solids, or deposits).
 1. **Noncompliance Notification:** A noncompliance which may endanger health or the environment shall be reported, **verbally within 24 hours** from the time the permittee becomes aware of the circumstances. A written submission shall be submitted within 5 days to the following:

MDEQ (during business hours) 517-335-6010
Lansing Michigan District Office
525 West Allegan (Constitutional Hall, 4th Floor, North)
P.O. Box 30242
Lansing, MI 48909-7742
 2. **Spill Notification:** See subsection c. in this section for handling spills or loss of any product, by-product, intermediate product, oils, solvents, waste material, or any other polluting substance which occurs to the surface waters or ground waters of the state.

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g. **Hazardous Material/Waste Release During Transportation:**

A telephone report (see phone numbers below) is required whenever any of the following occurs during the course of transportation in commerce (including loading, unloading, and temporary storage) as per 49 CFR 171.16 :

(1) As a direct result of a hazardous material -

- i. A person is killed;
- ii. A person receives an injury requiring admittance to a hospital;
- iii. The general public is evacuated for one hour or more;
- iv. A major transportation artery or facility is closed or shut down for one hour or more; or
- v. The operation flight pattern or routine of an aircraft is altered;

(2) Fire, breakage, spillage, or suspected radioactive contamination occurs involving a radioactive material (see also § 176.48 of this subchapter);

(3) Fire, breakage, spillage, or suspected contamination occurs involving an infectious substance other than a diagnostic specimen or regulated medical waste;

(4) A release of a marine pollutant occurs in a quantity exceeding 450 L (119 gallons) for a liquid or 400 kg (882 pounds) for a solid; or

(5) A situation exists of such a nature (e.g., a continuing danger to life exists at the scene of the incident) that, in the judgment of the person in possession of the hazardous material, it should be reported to the NRC even though it does not meet the criteria of paragraph (1), (2), (3) or (4).

As soon as practical but no later than 12 hours after the occurrence of any incident described above, each person in physical possession of the hazardous material must provide notice by telephone to:

- National Response Center (NRC) 800-424-8802
40 CFR 302.6

Each notice must include the following information:

- Name of reporter;
- Name and address of person represented by reporter;

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- Phone number where reporter can be contacted;
- Date, time, and location of incident;
- The extent of injury, if any;
- Class or division, proper shipping name, and quantity of hazardous materials involved, if such information is available; and
- Type of incident and nature of hazardous material involvement and whether a continuing danger to life exists at the scene.

Report: Each person in physical possession of a hazardous material at the time that any of the following incidents occurs during transportation (including loading, unloading, and temporary storage) must submit a Hazardous Materials Incident Report on DOT Form F 5800.1 (included in Appendix B) within 30 days of discovery of the incident:

- Any of the circumstances mentioned above in the Reportable Incident's section;
- An unintentional release of a hazardous material or the discharge of any quantity of hazardous waste;
- A specification cargo tank with a capacity of 1,000 gallons or greater containing any hazardous material suffers structural damage to the lading retention system or damage that requires repair to a system intended to protect the lading retention system, even if there is no release of hazardous material; or
- An undeclared hazardous material is discovered.

Providing and retaining copies of the report. Each person reporting under this section must—

(1) Submit a written Hazardous Materials Incident Report to:

Information Systems Manager
 PHH-63, Pipeline and Hazardous Materials Safety Administration
 Department of Transportation
 Washington, DC 20590 0001

or

file electronically via:

<https://hazmatonline.volpe.dot.gov/incident/>

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(2) Retain a written or electronic copy of the Hazardous Materials Incident Report for a period of two years at the reporting person's principal place of business. If the written or electronic Hazardous Materials Incident Report is maintained at other than the reporting person's principal place of business, the report must be made available at the reporting person's principal place of business within 24 hours of a request for the report by an authorized representative or special agent of the Department of Transportation.

(c) Updating the incident report. A Hazardous Materials Incident Report must be updated within one year of the date of occurrence of the incident whenever:

- (1) A death results from injury caused by a hazardous material;
- (2) There was a misidentification of the hazardous material or packaging information on a prior incident report;
- (3) Damage, loss or related cost that was not known when the initial incident report was filed becomes known; or
- (4) Damage, loss, or related cost changes by \$25,000 or more, or 10% of the prior total estimate, whichever is greater.

Although not required by the form, Transtar may be called upon to provide information regarding the materials involved in the incident. If the release involves a hazardous waste, then the manifest for the waste must be attached to the report and an estimate of the quantity of waste removed from the scene, the name and address of the facility to which it was taken, and the manner of disposition of any removed waste must be entered in Section IX of the report form. Reports are not required for the release of a defined consumer commodity, electric storage battery, and paint related materials shipped in packaging of five gallons or less unless the incident results in a fatality or injury, \$25,000 property damage, or involves hazardous waste.

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Containment Prevention Controls [Ref. 40 CFR 112.7(c)(1)(i-vii)]

Outside Facility

Storage of oil in the form of solvents and solvent-based paints and polluting materials is mainly in 55-gallon drums located outside the building in the Drum Storage Yard on the western side of the Transtar facility. A number of spill prevention measures are used to reduce the potential for oil, polluting materials, or hazardous waste to be released to navigable waters of the state from material storage, use, or handling installations located outside the facility structure. These include:

- i) Dikes, berms, or retaining walls,
- ii) Curbing,
- iii) Holding tank for containment of spills from the Drum Storage Yard, and
- iv) Spill kits including absorbent materials.
- v) Drain covers for the storm drains in the Shipping and Receiving Docks.

Drums containing oil-related materials, polluting materials and/or hazardous wastes are brought into and out of the facility from semi trailers using the Shipping and Receiving Docks located on the northwestern section of the building. The Shipping and Receiving Docks have 2 inch curbing around the storm drains to prevent a spill from entering the storm drain. There are also acid and regular spill kits available inside the Receiving Dock to use to prevent migration of any spills into the storm drains. The primary movement of drums and containers of material into and outside the building occurs from the Receiving Dock or Mixing Room to the Drum Yard and from the Drum Yard to the Mixing Room. The Drum Yard has containment with curbing, walls and graded pavement to a drain to a 200-gallon holding tank. The holding tank is connected via wrench valve to the storm water drainage system. The valve is normally in the closed position (see description in the General Facility Drainage Control section).

The facility also has spill response equipment listed in the Emergency Response section of this plan. The types of containment, diversionary structures, and equipment employed to prevent discharges are detailed and presented in Table 1. Figure 2 (Appendix A) presents the site plan along with the location of container storage areas, storm drains, and emergency equipment.

Inside Facility

Oils and polluting materials are stored or used inside the facility in primarily mobile containers such as drums, totes, or portable tanks (See Appendix A) which are located such that any spillage from these sources would be contained in the following manner:

- On paved areas,
- Secondary containments,
- Building floor with no floor drains, or
- Spill kits.

Hazardous waste is generated in the Mixing and Filling Rooms where there are hazardous waste accumulation areas. The hazardous waste storage area is located on the southern side of the Mixing Room. Areas inside the facility where storage of oil, polluting materials, or hazardous waste occurs in portable containers as well as the type of containment, diversionary structures, and equipment employed to prevent releases are detailed in Table 1.

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These areas include the Warehouse Area inside the building, process area, and interior portion of the Shipping and Receiving Docks.

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OTHER PLAN REQUIREMENTS

Demonstration of Impracticability/Alternatives Employed [Ref. 40 CFR 112.7(d)]

All oil, polluting material, and hazardous waste storage locations at this facility have secondary containment devices installed which are capable of preventing a release of oil from reaching navigable waters or waters of the state. An Oil Spill Contingency plan conforming to 40 CFR 109 is not required for this facility.

Inspections, Tests, and Records [Ref. 40 CFR 112.7(e)]

Transtar conducts inspections of petroleum-related portable containers according to the procedures listed in Table 3 which are based on the Steel Tank Institute (STI) Standard SP001 which was issued in July 2005. This method of inspection is based on the fact that Transtar does not have any bulk storage tanks greater than 2,500 gallons and utilizes only portable containers including 55-gallon drums and 550-gallons totes, and have continuous release detection methods and release prevention barriers. The three bulk tanks and portable containers at Transtar meet the STI SP001 Category 1 level, which requires at least monthly visual inspections of each container by the owner/operator. If there is documentation to indicate how long each portable container is kept on site, then the owner's inspector needs only to complete the STI Monthly Aboveground Tank (AST) Inspection Checklist and Portable Container Monthly Inspection Checklist for each month for containers on site for 91 days or more. Included on this table are applicable procedures, work instructions or forms that detail and document that these inspections are being completed. The Health, Safety and Environmental (HSE) Manager is responsible for ensuring the completion of the inspections in Table 3.

The routine spill prevention inspections that are performed and records that are maintained under this Plan are identified in Table 3.

**TABLE 3
INSPECTION SUMMARY**

INSPECTION TYPE/FORM OR WORK INSTRUCTION	DESCRIPTION	FREQUENCY	RESPONSIBILITY
Aboveground Tank inspections/ Aboveground Tank (AT) Inspection Checklist	Inspection of: - containers exterior condition, - tank support condition, - piping conditions, - valve conditions, - level gauge operations, - secondary containment for integrity and removal of any debris especially fire hazards, -detection and removal of any water in tanks, -Tank liquid gauges functioning and readable, -Seals for any tank openings, -tank or pipes for any leaks, -Spill control Equipment (inventory)	Monthly	Production Supervisor or Designee knowledgeable of bulk tank/container systems

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INSPECTION TYPE/FORM OR WORK INSTRUCTION	DESCRIPTION	FREQUENCY	RESPONSIBILITY
Portable Container Visual Inspections/STI Tank and Portable Container Inspection Checklist	Visual inspections of portable containers that are documented as being on site more than 91 days or visual inspection of all portable containers 55 gallons or more.	Monthly	Production Supervisor or Designee knowledgeable of Portable Containers and Container systems
Follow up preventive maintenance inspections/work for any nonconforming items from monthly or annual inspections documented on detailed reports	Conduct follow up inspection including corrective action	As needed for any nonconforming items from monthly or annual inspections	Steel Tank Institute (STI) or API-Certified inspector or tank manufacturer
Comprehensive Storm Water Inspection Form/ TAT-HSE-18A	Visual inspections of Storm Water Pollution Prevention Plan Significant Material Sources, Structural and Non-structural Controls	Minimum: Semi-annual, Max./recommended: Monthly	HSE Manager
Hazardous Waste Storage and Accumulation Areas/Required Weekly Hazardous Waste Maintenance Checklist	Visual inspections of Hazardous Waste Storage and Accumulation Areas	Weekly	Production Supervisor or Designee knowledgeable of hazardous wastes and the applicable regulations
Plant-wide Emergency Response Equipment Inspection/ Emergency Response Equipment Department Inventory	Visual inspection for conditions or use/inventory check of emergency response equipment (Spill containment/cleanup)	Monthly	Emergency Response Team
Emergency Response Station Equipment Inspections/ ER Station Inventory	Visual inspection for conditions or use/inventory check of emergency response equipment (includes spill containment/cleanup, personnel protective equipment (PPE) including respiratory protection, and air monitoring equipment.	Monthly	Emergency Response Team
Emergency Response SCBA Inspection/ ER SCBA Inspection	Visual inspection for conditions or use/ check of functionality of SCBA tanks, backpacks, regulators and masks.	Monthly	Emergency Response Team
Department Inspections/Departmental Inspection Forms	Visual inspections of facility operations and department practices	Monthly and random	Department Leaders and HSE Manager
Housekeeping Inspections/ Housekeeping Audit Form	Visual inspections of Plant for cleanliness and organization of the area	Monthly	Department Supervisors, Employees and HSE Manager

Example inspection sheets are included in Appendix C of this plan. Inspections are conducted according to the guidance on the inspection sheets/checklists identified in Table 3. The HSE Manager is responsible for ensuring these inspections are completed, and corrective actions are initiated, completed, documented, and kept on file. Records are maintained for a period of five years in the HSE Manager's office.

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Personnel Training and Discharge Prevention Procedures [Ref. 40 CFR 112.7(f)]

The training provided to facility personnel regarding implementation of the ISP including the SPCC, RCRA and SWPPP, PIPP, and other pollution prevention regulations for this facility are described below. Training is completed by the HSE Department or contractor, and the training records for Hazardous Waste Operations, RCRA, SPCC, SWPPP, and PIPP are kept in the HSE Manager’s Office.

Training Criteria [Ref. 40 CFR 112.7(f)(1)]

In the event of an emergency or spill, employees are instructed to use the internal phone/paging system and identify the location and the emergency to request ERT and Emergency Response Coordinator assistance. Environmental training requirements is guided by the HSE Training Matrix that documents the training requirements, periodicity of training, and which personnel by title are given the training. SPCC, SWPPP, and RCRA training is given annually to appropriate personnel in Production, Shipping/Receiving, and Material Handling which includes forklift operators. In addition, annual RCRA training is provided to personnel generating or handling hazardous waste, and DOT (biannually) training is provided for all supervisory and hourly personnel involved in the load/unload or forklift movement of chemicals that may result in a spill.

SPCC and SWPPP training is given to all “Oil Handling Personnel,” including but not limited to Material Handling and Production personnel. The SPCC training and refresher program for “Oil Handling Personnel” addresses the following topics:

- Operation and maintenance of equipment to prevent discharges,
- Discharge procedure and spill prevention control protocols,
- Identification of Materials with Spill Potential and Associated Hazards,
- Applicable pollution control laws and regulations,
- Discovery and notification procedures,
- General facility operations,
- Contents and changes to the facility Integrated Spill Plan,
- Spill History, Equipment, and Malfunctions.
- Good housekeeping practices/procedures; and
- Review of past spill incidents.

RCRA training is completed using a RCRA Training Slides PowerPoint presentation that is provided annually by the HSE Department to employees/personnel that handle hazardous wastes.

Designated Responsible Person [Ref. 40 CFR 112.7(f)(2)]

The facility Responsible Individual is accountable for oil spill prevention measures at Transtar. The Responsible Individual is the HSE Manager who is responsible for reporting to line management on the status of training and spill prevention plan effectiveness.

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Training Frequency [Ref. 40 CFR 112.7(f)(3)]

Transtar conducts spill prevention, control and countermeasures training on an annual basis.

Site Security [Ref. 40 CFR 112.7(g)]

The security measures used at this facility are described below.

Facility Fencing [Ref. 40 CFR 112.7(g)(1)]

The property is not fenced, but building entrances excluding the main visitor entrance which is attended are locked to the outside and can be accessed only with a key code entered on the manual key pad near each door. The Drum Yard on the western side of the facility is protected by an eight foot chain-link security fence on the western and northern sides, a 10 foot concrete wall on the southern side, and the building as the eastern wall. There are vehicle and personnel gates on the western side of the Drum Yard. The personnel gate is unlocked during operation hours for evacuation purposes and locked on off shifts and weekends. The building entrances are all secured using keyed locks and a security/intrusion alarm system with manual key pad control. All employees enter the building through the employee entrance on the center of the western side of the facility. The main visitor entrance is located on the western side of the building south of the employee entrance. The building and facility are secured by an ADT security system that includes electronic access control, intrusion detection, and fire alarms with an autodialer to notify specified Transtar personnel and local police and fire department.

Non-Operation Status [Ref. 40 CFR 112.7(g)(2)]

The three aboveground bulk tanks inside the Mixing Room and the holding tank in the Drum Yard are the only tanks at Transtar. The valves on the interior tanks are closed during overnight unattended hours and the building is locked and secured with intrusion alarms. The underground holding tank in the Drum Yard is located on the exterior of the building in a fenced area that is locked. The tank has a special valve "T" wrench that is secured in the Quality Control Lab and must be signed out during use.

Starter Controls [Ref. 40 CFR 112.7(g)(3)]

There are no pumps/starter controls for oil/oil-relate material at the Transtar facility; therefore this section does not apply.

Loading/Unloading Connections [Ref. 40 CFR 112.7 (g)(4)]

No bulk transfers occur at the Transtar facility; therefore, this section does not apply. Transtar receives all materials via portable containers on the Shipping and Receiving Docks.

Facility Lighting [Ref. 40 CFR 112.7(g)(5)(i-ii)]

The facility utilizes building mounted lights to illuminate the facility, roadways and property to allow operations personnel or security during hours of darkness to discover discharges and to deter/discover acts of vandalism.

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Facility Loading/Unloading Operations [Ref. 40 CFR 112.7(h)]

Liquid materials are received at Transtar in portable containers in 55-gallon drums and up to 550-gallon totes. No materials are received via bulk tankers; therefore, this section of the regulation does not apply.

Containment System [Ref. 40 CFR 112.7(h)(1)]

Liquid materials are received at Transtar in portable containers. No materials are received via bulk tankers; therefore, there are no required transfer containment areas, and this section of the regulation does not apply.

Physical Barrier System [Ref. 40 CFR 112.7(h)(2)]

Liquid materials are received at Transtar in portable containers. No materials are received via bulk tankers; therefore, there are no bulk transfer areas requiring use of physical barrier system to prevent the tanker from driving off while connected, and this section of the regulation does not apply.

Vehicle Inspections [Ref. 40 CFR 112.7(h)(3)]

Liquid materials are received at Transtar in portable containers. No materials are received via bulk tankers; therefore, there are no tanker deliveries where prior to filling and departure of any tank truck, the drains, all outlets, valves and transfer hoses be closely examined for leakage, and if necessary, adjusted to prevent leakage during loading or transit. This section of the regulation does not apply.

Field-Constructed Aboveground Container Repair, Alteration, or Reconstruction [Ref. 40 CFR 112.7(i)]

Any bulk aboveground container must be evaluated for risk of discharge or failure resulting from any container repair, alteration, reconstruction, or a change in service that may affect the risk of a discharge or failure. Appropriate actions must be put in place to minimize risk of discharge or container failure. There are no tanks at the Transtar facility nor any bulk tanks that are field constructed or have undergone repair, alteration or reconstruction; therefore, this section of the regulation does not apply.

Other Applicable Discharge Prevention Standards and Procedures [Ref. 40 CFR 112.7(j)]

This plan includes sections that address compliance with the following:

- State of Michigan Part 5 Rules for the creation and maintenance of a Pollution Incident Prevention Plan (PIPP)(detailed in the PIPP Element Index under the PIPP tab);
- State of Michigan Department of Environmental Quality (MDEQ) National Pollutant Discharge Elimination System (NPDES) Wastewater Discharge General Permit for Storm Water Discharges requirement for a Storm Water Pollution Prevention Plan (SWPPP) (detailed in the SWPPP Element Index under the SWPPP tab);
- Title 40 CFR 261 and 264 Resource Conservation and Recovery Act (RCRA) for Contingency Plan (for hazardous waste);

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- Title 40 CFR Section 302 Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended, governing notification requirements; and,
- Title 40 CFR Section 355- Superfund Amendments and Reauthorization Act (SARA) of 1986 governing emergency planning and notification.

Facility Drainage [Ref. 40 CFR 112.8(b)/112.12(b)]

Secondary Containment Drainage [Ref. 40 CFR 112.8(b)(1-2)/112.12(b)(1-2)]

The Drum Storage Yard on the western side of the facility is the only exterior containment area that collects storm water as well as any discharges from the portable containers. The storm water secondary containment consists of an underground holding tank and all storm water from the drum yard drains to it. The storm water vault is inspected prior to removal or release. The notification that the vault is full is initiated by the mixing department by notifying the maintenance department. The maintenance department goes out to the drum yard and grabs a representative sample from the underground vault and takes the sample to Quality Control (QC). QC uses the TAT Test Method 500: Storm Water testing procedure and evaluates for color, sediment, oil, and unusual odor. If the storm water passes this means that the sample has no separation, no excessive sediment, odor, or foaming for longer than 10 seconds. QC then lets Maintenance know that the accumulated storm water in the underground holding tank can be released via a wrench valve to the storm water drainage system and Outfall 001 to the Fire Pond. If the sample fails, QC informs the maintenance and EHS departments that the test failed and the storm water is removed via pumping to tanker or container and disposed in accordance with local, state and federal regulations. The testing records are maintained by QC. Secondary containment dikes at this facility do not have flapper type drain valves installed.

General Facility Drainage Control [Ref. 40 CFR 112.8(b)(3-5)]

The storm water drainage system collects water from roof gutters, parking lot, dock areas, and adjacent areas and carries the runoff from the exterior areas and these other discharges via gravity in underground piping to the Fire Pond, a storm water detention pond located south of the site and across Pless Drive. The Fire Pond discharges to Ackerman Lake according to the MDEQ NPDES permit (See Figure 2). Storm water from the Drum Yard runs across the pavement to a drain that leads to a 200-gallon underground holding tank. The contents of this tank are inspected using sight and smell, released or removed and disposed in accordance with local, state and federal regulations.

According to the MDEQ NPDES permit, non contact cooling water from a solvent still and milling machines may be discharged to the storm water drainage system. In addition, six storm water roof drains on the western side of the facility are enclosed and lead into subsurface drainage and two drains in the Electrical Room on the western interior of the plant lead to subfloor drainage. Drainage and discharge points for the non-contact cooling water, six roof drains, and two Electrical Room drains should be investigated as current maps do not show their connection to storm water or other drainage.

Sanitary wastewater generated from the restrooms and kitchen sinks drain via piping to a septic system located on the southwestern exterior of the facility.

Bulk Storage Containers [Ref. 40 CFR 112.8(c)]

The storage containers used at Transtar are primarily portable containers containing petroleum related materials, polluting materials, and hazardous waste. The locations of the portable containers are identified in Table 1. Spill

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prevention measures developed for portable containers at this facility are provided in the “Secondary Containment” section discussed below. There are no bulk storage containers at this facility.

Application Compatibility [Ref. 40 CFR 112.8(c)(1)]

The following information regarding portable containers is presented in Table 1:

- DOT Hazard Class;
- CAS numbers for materials considered Michigan polluting materials;
- Capacity;
- Tank/Container type;
- Material of construction;
- Containment capacity; and
- Engineering devices (for bulk storage tanks).

The container type, capacity, material of construction, and environmental conditions that exist for each portable container installation are compatible with the respective storage application based on tank information and visual inspection.

Secondary Containment [Ref. 40 CFR 112.8(c)(2)]

Secondary containment devices consist of dikes or curbs that encompass the material storage vessel. The capacity of secondary containment for the bulk storage tanks and portable container areas is presented in Table 1. The secondary containment structures are constructed of materials that are compatible with, and impervious to the material to be contained. The capacity of secondary containment devices installed for each portable container area is sufficient to retain the volume of contents in the largest container within the secondary containment and direct precipitation, as applicable, which may collect in the device.

Precipitation Drainage [Ref. CFR 112.8(c)(3)]

Rain water which accumulates in Drum Storage Yard holding tank is inspected, released to the storm water drainage system or removed and disposed in accordance with local, state, and federal regulations. Accumulated rainwater is not discharged into an open water course, lake, or pond; therefore, the requirements of 40 CFR 112.8(c)(3) do not apply. Non contact cooling water discharged to the Fire Pond is sampled prior to the storm drain and analyzed per the requirements in the NPDES permit per the Sampling Data section in the SWPPP portion of this ISP.

Completely Buried Metallic Storage Tanks [Ref. 40 CFR 112.8(c)(4)]

This facility does not have any completely buried metallic storage tanks; therefore, this section of the regulation does not apply.

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Partially Buried Metallic Tanks [Ref. 40 CFR 112.8(c)(5)]

There are no partially buried tanks at this facility and the requirements of 40 CFR 112.8(c)(5) do not apply.

Aboveground Container [Ref. 40 CFR 112.8(c)(6)]

Aboveground containers at this facility are identified in Table 1 and include any containers and operating/manufacturing equipment that contains 55 gallons or more of oil. The location of each aboveground container installed at this facility is provided in Appendix A (Figure 2).

Portable containers are monitored for leakage by visual inspection, which are conducted according to the inspections on Table 3. Working liquid levels of portable containers are monitored by inspection through open tops.

Based on the container capacity, layout and type, the three bulk aboveground tanks which are less than 3,000 gallons and located inside the building on stilts and portable containers at Transtar, these tanks and containers meet the STI SP001 Category 1 level, which requires at least monthly visual inspections of each container by the owner/operator. All of the tanks and portable containers can be visually inspected per STI SP001. See the Inspections, Tests, and Records for the types of inspections and forms to use.

Internal Heating Coils [Ref. 40 CFR 112.8(c)(7)]

There are no tanks with internal heating coils at this facility, therefore the inspection and spill prevention measures identified in 40 CFR 112.8(c)(7) are not applicable.

Fail-Safe Engineering Controls [Ref. 40 CFR 112.8(c)(8)]

There are three bulk tanks at this facility that are used to mix and produce the final materials that are then individually containerized. These tanks have direct vision gauges to show the level inside them. These tanks are filled from drums, totes and other containers but not from bulk tankers.

Plant Effluents [Ref. 40 CFR 112.8(c)(9)]

Storm water is discharged from the site via Outfall 001 which enters the Fire Pond. Storm water outfalls are inspected semiannually or at any point that a discharge is suspected to have entered the storm water drainage system. Sanitary drainage from the facility enters a septic system with tanks and field located southwest of the facility.

Septic and storm sewers are depicted on Figure 2 in Appendix A.

Visible Leaks [Ref. 40 CFR 112.8(c)(10)]

The bulk storage tanks and associated secondary containment structures are routinely inspected for leaks or material loss. Conditions resulting in material loss are corrected. Accumulated material is cleaned up from the building floor. Inspection records are maintained in accordance with the "Inspection & Records" section.

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Mobile or Portable Oil Storage Containers [Ref. 40 CFR 112.8(c)(11)]

Mobile containers routinely used at this facility include totes (220-550 gallons); drums (55 gallons); and various pails, cans, and jugs (1-30 gallons). These containers are used both inside and outside the facility.

Secondary containment measures used for mobile containers inside this facility include, but are not limited to, the following:

- Positioning the containers inside the building on paved surfaces with no access to release points.
- Placing absorbent booms or pillows around the container perimeter.
- Placing the container in a diked or curbed area with no gravity drain.

All containers brought into the facility as a raw material or laboratory sample are provided by the manufacturer. In the case of a damaged or missing label, an alternative label is placed on the container. Material identification on containers including the Transtar products is completed using a Hazardous Materials Identification System (HMIS) as a secondary labeling source. All materials to be used by plant operating personnel are labeled according to the potential hazards. The system is described in employee Safety Procedures, SP-008. All plant personnel are trained in the HMIS and the HSE Department and Technical Departments maintain HMIS Codes for all materials. The HMIS is utilized throughout the warehouse for quick identification of hazardous materials. It does not replace the importance of a label on individual containers.

Hazardous wastes (and non-hazardous wastes) are containerized. Hazardous wastes are moved to a hazardous waste storage area located on the southern wall of the Mixing Room. Hazardous waste drums are stored on drum containment pallets. Hazardous waste satellite accumulation areas are located on the eastern wall of the Fill Room and in the Mixing Room.

Empty non-hazardous drums are stored in a semi trailer located on site. A summary of containers, materials, and amounts is provided in Table 1.

Facility Transfer Operations [Ref. 40 CFR 112.8(d)]

There are no bulk material transfer operations of petroleum or polluting materials at this facility; therefore this section of the regulation is not applicable.

Buried Piping [Ref. 40 CFR 112.8(d)(1)]

Currently, there is no buried oil transfer piping at this facility; therefore this section of the regulation does not apply.

Any buried piping installed after August 16, 2002 must be equipped with protective wrapping or coating. Corrosion protection standards for piping are required in accordance with 40 CFR 280 or 40 CFR 281.

Inactive Service [Ref. 40 CFR 112.8(d)(2)]

There are no inactive services of petroleum or polluting materials at this facility; therefore, this section of the regulation is not applicable.

NFPA hazardous identification or DOT hazard classification systems are used for labeling pipelines, valves and connection flanges/bulkheads. All terminal connections and fill line connections are to be labeled as to where the

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pipeline is connected (i.e., tank number, process unit, etc.) and the type of product/material or waste acceptable to be transferred into each connection. All terminal and rack connections are to be capped or blank-flanged when not transferring product/material or waste.

Pipe Supports [Ref. 40 CFR 112.8(d)(3)]

There are no pipes containing petroleum or polluting materials at this facility; therefore this section of the regulation does not apply.

Pipeline Inspections [Ref. 40 CFR 112.8(d)(4)]

There are no pipes containing petroleum or polluting materials at this facility; therefore this section of the regulation does not apply.

Pipeline Posting [Ref. 40 CFR 112.8(d)(5)]

There are no pipes containing petroleum or polluting materials at this facility; therefore this section of the regulation does not apply.

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**Pollution Incident Prevention Plan (PIPP)
[Ref. Michigan Part 5]**

The Transtar Autobody Technologies, Inc facility (Transtar) is both an “Oil Storage Facility” and an “On-Land Facility” according to the Part 5 PIPP Rule. The statutory elements of the Pollution Incident Prevention Plan (PIPP) have been established according to Michigan Part 5 [R 324.2006], August 31, 2001. The locations of the required elements are outlined on the PIPP Element Index. An evaluation of the materials that Transtar uses, stores, and generates was conducted in order to determine if the conditional exemptions in R 324.2003 (Rule 3) applied to the materials and Transtar. Due to the fact that Transtar utilizes and stores various paints, solvents, acetic acid, and lead acid batteries in forklifts, the facility must complete a PIPP.

On Table 1, several entries are itemized as being PIPP-related; however, specific material constituents are not listed. This is due to the process used in the Product Mix Tanks which contain different materials based on the batch being produced.

PIPP Maintenance [Ref. Michigan Part 5 R.324.2006(2) and (4)]

The surveillance requirements of the PIPP shall be in place by August 31, 2001. The requirements include the following elements:

- Oil storage or on-land facilities shall maintain adequate surveillance of all manufacturing processes, treatment systems, storage areas, and other areas so that any polluting material losses can be detected in a timely manner and procedures implemented to prevent any polluting materials from reaching the waters of the state.
- Solid form chemicals must be enclosed, covered, or captured to prevent run-off to water.
- Solid form chemicals cannot be stored within 50 feet of wetlands, shore of a lake, or bank of stream.
- Releases must be reported.
- Indoor chemical storage must be designed to prevent the release of polluting material through sewer, drains, or otherwise directly to the public sewer.

The facility owner or operator shall maintain the plan at the facility available for inspection upon request of the Michigan Department of Environmental Quality (MDEQ). Within 30 days after its completion, the facility owner or operator shall notify the department and certify that the facility is in full compliance with these rules and notify the local emergency planning committee (LEPC) and the local health department serving the facility that the Pollution Incident Prevention Plan (PIPP) has been completed and is available upon request. Within 30 days after receiving a request for a copy of the PIPP from the MDEQ, the LEPC or the local health department, the facility owner or operator shall submit a copy of the PIPP to the requesting agency.

The facility owner or operator shall evaluate the PIPP or integrated plan every 3 years or after any release that requires implementation of the plan, whichever is more frequent. The facility owner or operator shall update the plan when facility personnel, processes, or procedures identified in the plan change or as otherwise necessary to maintain compliance with this rule. Upon preparation of an updated plan, the facility owner or operator shall re-notify the MDEQ, LEPC, and local health department and re-certify compliance with these rules as mentioned above.

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**TABLE 4
PIPP ELEMENT INDEX**

PIPP Requirement	Regulatory Citation	Integrated Spill Plan Section and Description
(i) Facility name (ix) The name of the facility owner (ii) Mailing address (iii) Street Address, if other than the mailing address (iv) Facility phone number	R 324.2006 Rule 6.(1) (a)	REGIONAL ADMINISTRATOR DISCHARGE REPORT "Name of the Facility" p. 8 "Name of Owner or Operator of Facility" p. 8 "Location of Facility" p. 8
(v) 24-hour emergency phone number or numbers (vi) Internal emergency notification procedures (vii) The name of the designated spill prevention and control coordinator (viii) The name of the person or persons responsible for on-site spill prevention and control, if different than the designated spill prevention and control coordinator.	R 324.2006 Rule 6.(1) (a)	"Discharge Discovery & Response" p. 28
(x) A map showing the facility relative to the surrounding area, including thoroughfares	R 324.2006 Rule 6.(1) (a)	Appendix A-Figure 1 Site Location Map
Procedures for emergency notification of all of the following entities: (i) MDEQ's pollution emergency alerting system (PEAS) (ii) National Response Center (iii) Local emergency planning committee (LEPC) (iv) Local fire department (v) Local law enforcement agency (vi) Municipal wastewater treatment plant if the facility is served by a municipal WWTP (vii) Appropriate spill cleanup contractor, or consulting firm, or both	R 324.2006 Rule 6.(1) (b)	"Discharge Discovery & Response" p.28
All of the following spill control and cleanup procedures: (i) Inventory and location of spill control and cleanup equipment available on-and off-site (ii) Procedures for response and cleanup (iii) Procedures for characterization and disposal of recovered materials	R 324.2006 Rule 6.(1) (c)	"Discharge Discovery & Response" p. 28, and Appendix A – Figure 2 Site Plan
A polluting material inventory, including all of the following information: (i) Identification of all polluting materials typically on-site in quantities exceeding the threshold management quantity during the preceding 12 months. (Product name, chemical name, and CAS number shall identify Materials) (ii) The location of material safety data sheets for all polluting materials on-site in quantities exceeding the threshold management quantity	R 324.2006 Rule 6.(1) (d)	Table 1 - Material Inventory and Container Schedule, p. 14 MSDSs (hardcopies) are available in the HSE Manager's Office, and the Fire Protection Building located adjacent to the Fire Pond. MSDSs are available on the website/electronic system.
A site plan depicting relevant site structures and all storage and use areas where polluting materials are	R 324.2006 Rule 6.(1) (e)	Appendix A - Figure 2

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PIPP Requirement	Regulatory Citation	Integrated Spill Plan Section and Description
managed on-site in quantities exceeding the threshold management quantity, including any of the following: (i) ASTs and USTs (ii) Floor drains (iii) Loading and unloading areas (iv) Sumps (v) On-site water supplies		
(f) Outdoor secondary containment structures, including all of the following information: (i) Location or locations. (ii) Design and construction data, including dimensions, materials, capacity, and the amount of the polluting materials stored in each area.	R 324.2006 Rule 6.(1) (f)	Table 1 - Material Inventory and Container Schedule, p. 14
(iii) Provisions for the capture and removal of spilled polluting materials (iv) Provisions for secondary containment structure physical security, including signage, gates, fences, and barriers (v) Precipitation management procedures, including characterization and disposal procedures and copies of any permits authorizing discharge	R 324.2006 Rule 6.(1) (f)	“Discharge Discovery & Response” p. 28, and/or “Site Security” p. 53 “Precipitation Drainage” p. 56
(vi) Inspection and maintenance procedures	R 324.2006 Rule 6.(1) (f)	“Inspections, Tests, and Records” p. 50 “Pipeline Inspections” p. 59-N/A
Other controls.	R 324.2006 Rule 6.(1) (g)	“Fail-Safe Engineering Controls” p. 57
Provisions for general facility physical security.	R 324.2006 Rule 6.(1) (h)	“Site Security” p. 53

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STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Purpose and Requirements

The following SWPPP was developed in accordance with the requirements set forth in the Michigan Department of Environmental Quality (MDEQ) National Pollutant Discharge Elimination System (NPDES) Wastewater Discharge Individual Permit # MI0056988 and Certificate of Coverage MIS410021 for the Transtar Autobody Technologies, Inc. (Transtar) facility in Brighton, Michigan. The NPDES Permit which is included in Appendix D, requires the preparation of a SWPPP. The goals of the plan are:

1. To maximize control of significant materials.
2. To reduce the level of significant materials in storm water so that storm water discharges will not cause a violation of Michigan Water Quality Standards.

To address the citations and goals of a SWPPP, the requirements for a SWPPP have been documented in this section or itemized in the following element index which references wherein the SPCC the requirements are addressed.

**TABLE 5
SWPPP ELEMENT INDEX**

SWPPP Requirement	Permit Citation	SPCC Section /Description	Page No.
a. Source Identification	Part I A.3.a		
1) A site map identifying: Buildings and other permanent structures,	Part I A.3.a	Appendix A-Figure 2 Site Plan	Figure 2
Storage or disposal areas for significant materials,	Part I A.3.a	Appendix A-Figure 2 Site Plan	Figure 2
Secondary containment structures,	Part I A.3.a	Appendix A-Figure 2 Site Plan	Figure 2
Storm water discharge outfalls (numbered for reference),	Part I A.6.a	Appendix A-Figure 2 Site Plan	Figure 2
Location of storm water and non-storm water inlets contributing to each outfall,	Part I A.6.a	Appendix A-Figure 2 Site Plan	Figure 2
Location of NPDES permitted discharges other than storm water,	Part I A.6.a	Appendix A-Figure 2 Site Plan	Figure 2
Outlines of the drainage areas contributing to each outfall,	Part I A.6.a	Appendix A-Figure 2 Site Plan	Figure 2
Structural runoff controls or storm water treatment facilities,	Part I A.6.a	Appendix A-Figure 2 Site Plan	Figure 2
Areas of vegetation,	Part I A.6.a	Appendix A-Figure 2 Site Plan	Figure 2
Areas of exposed and/or erodible soils,	Part I A.6.a	Appendix A-Figure 2 Site Plan	Figure 2
Impervious surfaces (roof, asphalt, concrete),	Part I A.6.a	Appendix A-Figure 2 Site Plan	Figure 2
Name and location of receiving water(s),	Part I A.6.a	Appendix A-Figure 1 Site Location Map	Figure 1
Areas of known or suspected impacts on surface waters designated under the Natural Resources and Environmental Protection Act, P.A. 451, Part 201, of 1994 (formerly Act 307).	Part I A.6.a	Not Applicable	NA
2) List of all significant materials that could enter storm water with the following	Part I A.6.a	"Evaluation of Discharge Potential"	Page 13

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SWPPP Requirement	Permit Citation	SPCC Section /Description	Page No.
descriptions: a) Ways in which each type of material has been, or has reasonable potential to become, exposed to storm water (e.g. spillage during handling, leaks from pipes, pumps, vessels, contact with storage piles, waste handling and disposal, deposits from dust/overspray, etc.)		Table 1 – Material Inventory and Container Schedule	Page 14
b) Identification of the outfall or outfalls through which the materials may be discharged if released.	Part I A.6.a	Table 1 – Material Inventory and Container Schedule “General Facility Drainage Control”	Page 14 Page 55
c) Listing of significant spills and leaks of polluting materials that occurred at areas that are exposed to precipitation or that otherwise discharge to a point source at the facility. Listing shall include spills that occurred over the three years prior to the effective date of a certificate of coverage authorizing discharge under this general permit. Listing shall include: <ul style="list-style-type: none"> ➤ Date, ➤ Volume, ➤ Exact location of release, and ➤ Actions taken to clean up material and/or prevent exposure to storm water runoff or contamination of surface waters of the state. 	Part I A.6.a	Appendix A-Figure 2 Site Plan “Historic Spill Record”	Figure 2 Page 7

d) SAMPLING DATA

Transtar, per their permit, is required to sample twice per month at Outfall 001 and in the Fire Pond for temperature when discharging non-contact cooling water. During the discharge of reverse osmosis wastewater, the wastewater will be sampled prior to storm water drain entry monthly for total dissolved solids. The storm water discharge will be sampled 2 times per month and analyzed for oil and grease. Daily observations will be kept for the volume and condition of the water in the flows into the Fire Pond from Transtar. Any unusual characteristics noted in the discharges shall be reported to the MDEQ within 24 hours in accordance with the Agency Notification section of this ISP. Existing storm water and other wastewater discharge sampling data is included in Appendix E for October 2006 through February 2007.

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3) SOURCE IDENTIFICATION AND EVALUATION

A site walk-through investigation was performed by Tetra Tech and Transtar representatives on March 14, 2007 to identify and/or review sources of significant materials and the non-structural and structural controls in place to prevent contact of significant materials with storm water. The investigation included an evaluation of the controls associated with each significant material and only included the outdoor portion of the facility and the building roof areas. Most indoor areas of the plant except for the Shipping and Receiving Docks and Garage area do not expose significant materials to storm water and are typically not addressed as part of the SWPPP. The evaluation of the reasonable potential for contribution of significant materials to runoff was completed for at least the following activities applicable to Transtar:

- Loading/unloading and other material handling operations,
- Outdoor storage including secondary containment,
- Significant dust or particulate generating processes,
- Discharges from vents, stacks and air emission controls,
- Maintenance and cleaning of vehicles, machines, and equipment,
- Other areas where storm water may contact significant materials.

The following areas are not present at the Transtar:

- Outdoor manufacturing or processing activities,
- On-site waste disposal practices,
- Sites of Environmental Contamination listed under Part 201 of the Michigan Act,
- Areas of significant material residues.
- Areas of exposed and/or erodible soils.

b. Preventive Measures and Source Controls, Non-Structural

To prevent significant materials from contacting storm water at the source, the SWPPP shall, at a minimum, include the following non-structural controls (non-physical means of reducing the potential for contact between storm water and significant materials). These non-structural controls must be in place at the time of permit application, be maintained, and be evaluated for potential improvements:

1. **Preventive Maintenance (PMa)** – This includes a programs for routine inspection and preventive maintenance of storm water management devices and of facility equipment and systems to uncover and correct conditions, which could result in a discharge of significant materials to the storm water collection systems.

Transtar conducts inspections of tank/container systems, operating equipment, piping, spill response equipment and departments/areas according to the “Inspections, Tests, and Records” section in the ISP and the forms in Appendix C.

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2. **Comprehensive Site Inspections (CSI)** – A comprehensive inspection of equipment, plant areas, structural pollution prevention controls must be performed at least every 6 months. Facility Maintenance and the HSE Departments verify the structural integrity of the Structural Controls identified in Table 1. The verification will be performed as part of the Comprehensive Site Inspection that is completed semiannually. A report of the results using the form in Appendix C must be prepared and retained for a period of three years. Transtar also conducts inspections according to the “Inspections, Tests, and Records” section of the SPCC.
3. **Good Housekeeping (GH)** – These include procedures to maintain a clean, orderly facility. For Transtar, these include:
 - a. Properly disposing of empty drums and not staging/storing them outside.
 - b. Cleaning up exterior grounds based on visual inspections. Monthly housekeeping inspections are conducted by Production Supervisors and employees, and any issues that are identified are resolved. General facility inspections itemized in Preventive Maintenance identify any areas needing cleaning so that they are addressed as a result.

Good housekeeping is also conducted on an “as-needed” basis as determined by the inspection noted in Comprehensive Site Inspections sections above.

4. **Spill Prevention, Response, and Material Handling/Storage Requirements and Procedures (SPR)** - Spill prevention and response procedures are documented in the “EMERGENCY RESPONSE” section of this ISP. This ISP addresses the requirements of Michigan Part 5 Rule for Pollution Incident Prevention Plans (PIPP) and the 40 CFR 264.52 requirement for a RCRA Contingency Plan. The facility has an active Hazardous Materials (Hazmat) Response team for handling chemical spills. The Hazmat team has been trained by a Michigan State Police-certified Hazmat Trainer. The Hazmat team operates under the procedures in this ISP and the facilities Emergency Response Plan (ERP).
5. **Soil Erosion and Sedimentation Control Measures (SESCM)** – Currently, there are no areas of soil erosion or where sedimentation control measures are necessary. If construction or other activities occur to create areas have a high potential for significant soil erosion, these areas will be controlled by silt fencing and drain sediment filters.
6. **Employee Training (ET)** - Employee training conducted to periodically inform appropriate personnel at all levels of responsibility of the components and goals of the SWPPP is completed according to the “Training Criteria” and “Training Frequency” sections in the ISP. In addition to the topics itemized described in the ISP sections, the following SWPPP-related issues are also covered for appropriate personnel:
 - i. Good Housekeeping,
 - ii. Review past spill incidents,

All facility personnel are made aware of the importance of preventing discharges of significant materials into storm water drains and sewers.

7. Identification of significant materials expected to be present in storm water discharges following implementation of non-structural preventive measures and source controls. No significant materials are expected to be present in storm water discharges after non-structural preventive measures and source controls are implemented.

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**TABLE 5
SWPPP ELEMENT INDEX**

SWPPP Requirement	Permit Citation	SPCC Section /Description	Page No.
<p>c. Structural Controls for Prevention and Treatment (Part I.A.3.c.) Structural controls include physical structures to prevent or minimize the direct contact of storm water with sources of significant materials. Structural controls in place and operational at time of permit application must be certified/documented. Structural controls may be necessary:</p> <ul style="list-style-type: none"> To prevent uncontaminated storm water from contacting or being contacted by significant materials; or If preventive measures are not feasible or are inadequate to keep significant materials at the site from contaminating storm water. Structural controls shall be used to treat, divert, isolate, recycle, reuse, or otherwise manage storm water in a manner that reduces the level of significant materials in the storm water and provides compliance with the Water Quality Standards as identified under Part I.A.3.h. of the NPDES permit. <p>NOTE: Permittees who do not need to construct structural controls in accordance with this part shall certify to the District Supervisor that structural controls are not needed at the facility and begin storm water monitoring as required in Part I.A.2. of the permit within one year after the effective date of a Certificate of Coverage issued under this general permit, or as soon as the non-structural controls are implemented.</p> <p>Structural controls may include the following:</p>			
1. Blind sumps (BS) - Catch basins that are dead end and are required to be periodically checked and pumped out.	(Part I.A.3.c.)	Not Used	NA
2. Covered (C) - The partial or total enclosure of an area to prevent rain and snow from contacting significant materials to storm water. Coverings may include tarpaulins, plastic sheeting, roofs, or buildings.	(Part I.A.3.c.)	Table 1- Material Inventory and Container Schedule	Page 14
3. Containment Curbing - Curbing is a barrier that surrounds an area of concern and functions similarly to diking except at a smaller scale. Curbing is commonly used in areas where liquid materials are handled and transferred.	(Part I.A.3.c.)	Table 1- Material Inventory and Container Schedule	Page 14
4. Drip Pans - Drip pans are used to contain small leaks from leaky valves, pipes etc. until they can be repaired. Drip pans can also be used as a precautionary measure for areas where potential exists for leaks.	(Part I.A.3.c.)	Used as needed in Filling Room and Mixing Room	NA
5. Double Walled – Bulk chemicals and fuels are stored in either above-grade or below-grade tanks. These storage tanks have interstitial monitoring for leaks in the primary tank.	(Part I.A.3.c.)	Not Used	NA
6. Oil/water Separator (OS) – Structures provided in either storm water or other flow path to separate floatable oils and heavy sediment from the storm water or other flow path prior to discharge to the outfall.	(Part I.A.3.c.)	Not Used	NA
7. Grading (G) – Grading is used to direct a spill to a common collection point such as a low elevation area, a blind sump, or a sump that conveys the liquid to a facility treatment	(Part I.A.3.c.)	Table 1- Material Inventory and Container Schedule	Page 14

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SWPPP Requirement	Permit Citation	SPCC Section /Description	Page No.
system.			
8. Paving (P) - Concrete or asphalt paving installed and shaped to minimize soil erosion or to collect storm water that has contacted significant materials and drains to process sewer or collected for disposal.	(Part I.A.3.c.)	Table 1- Material Inventory and Container Schedule	Page 14
9. Preventive Measures (PMe) – Preventive measures include signage and labels to identify problem areas, to identify hazardous materials, and to suggest caution; safeguards such as safety posts, barriers, or fences around high risk areas; and a good security system.	(Part I.A.3.c.)	Not Used	NA
10. Sump (S) – Sumps are used in conjunction with diking, berms, curbing, and grading, and are located at the lowest elevation within these structures so that the containment area drains into them. These sumps are then drains into a facility treatment system.	(Part I.A.3.c.)	Table 1- Material Inventory and Container Schedule	Page 14
11. Secondary containment (SC) – Secondary containment typically consists of diking in the form of earth or concrete berms or retaining walls. Diking is used for aboveground tanks, rail cars, and material handling areas.	(Part I.A.3.c.)	Table 1- Material Inventory and Container Schedule	Page 14
12. Sediment and Erosion Control (SEC) – Physical measures put in place to minimize the amount of soil and other granular materials exposed to storm water. Plant grass and vegetative swales if required.	(Part I.A.3.c.)	Not Used	NA
13. Spill Mat (SM) – A spill mat is placed over storm drain during loading/unloading or in the event of a spill to prevent materials from entering the storm sewer.	(Part I.A.3.c.)	Table 1- Material Inventory and Container Schedule	Page 14
14. Trench Drain (TD) – Includes either covered or open concrete-lined trenches that direct any releases to the lowest area or sump where the material can be collected or diverted to a facility treatment system.	(Part I.A.3.c.)	Table 1- Material Inventory and Container Schedule	Page 14
15. Sanitary Drain (San) – Drains within the facility that lead to sanitary sewers.	(Part I.A.3.c.)	Not Used	NA
16. Spill Kit (SK) - Kits containing absorbent materials for immediate response to spills are permanently stationed throughout the facility.	(Part I.A.3.c.)	Table 1- Material Inventory and Container Schedule	Page 14
17. Wastewater Treatment Plant (WWTP) - Several catch basins, trench drains at the facility that may convey storm water and spills to the WWTP.	(Part I.A.6.c.)	Not Used	NA

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d. Keeping Plans Current

The SWPPP shall be reviewed annually on or before September 1 of each year and maintain documented written summaries of the reviews. The purpose of the review is to evaluate the effectiveness of the SWPPP to ensure continued compliance with the terms and conditions of the general permit.

The SWPPP shall be amended as needed to ensure compliance with the general permit. The SWPPP shall also be amended whenever changes or spills at the facility increase the exposure of significant materials to storm water, or when Transtar or District Water Bureau Supervisor determines the SWPPP is ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with industrial activity. Updates to the SWPPP based on increased activity or spills at the facility shall include a description of how Transtar intends to control any new sources of significant materials or respond to and prevent spills in accordance with the requirements of the general permit.

The District Water Bureau Supervisor or authorized MDEQ representative may notify Transtar at any time and shall identify why the SWPPP does not meet the minimum requirements. The required changes shall be completed within 30 days after such notification from the District Supervisor or MDEQ authorized representative, and shall submit to the District Supervisor a written certification that the requested changes have been completed.

e. Certified Storm Water Operator Update

If the certified operator is changed or an additional certified operator is added, the name and certification number of the new certified operator shall be provided to the District Water Bureau Supervisor. The new operator shall review and sign the SWPPP.

f. Signature, Signatory Requirements, and Plan Availability

The Permit Part I.A.3.f. requires that the SWPPP be signed in accordance with Part I.A.6.i. of the Permit by the following:

- Storm water certified operator and
- Either the permittee or an authorized representative.

All applications, reports, amendments or updates to the SWPPP, or information submitted to the Department shall be signed and certified in accordance with 40 CFR 122.22 which requires that any person signing the aforementioned documents shall make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person(s) who manage the system, or those person(s) directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

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SWPPP Date	Reviewed By	Amendment Needed Yes or No	Title	Certification Signature

Any amendments needed for this SWPPP will be recorded on the "Amendment History" in the ISP Amendments section.

All plans, reports, log books, storm water discharge sampling data (if collected) and supporting documents shall be made available to the District Supervisor of the Water Bureau or authorized representative.

g. Record Keeping

All records including:

- SWPPP-related inspections
- SWPPP-related maintenance activities,
- Descriptions of spills or other discharges that can affect the quality of storm water runoff,
- Storm water sampling (if collected), and
- Other reports, logbooks, and information required in relation to the General Permit

shall be retained for three (3) years.

h. Water Quality Standards/Reporting Requirements

At the time of discharge, there shall be no violation of the Water Quality Standards in the receiving waters as a result of the storm water discharge. This requirement includes, but is not limited to, the following conditions:

- In accordance with Rule 323.1050 of the Water Quality Standards, the receiving waters shall not have any of the following unnatural physical properties as a result of this discharge in quantities which are or may become injurious to any designated use: unnatural

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turbidity, color, oil film, floating solids, foams, settleable solids, suspended solids, or deposits.

- Any unusual characteristics of the discharge (i.e. unnatural turbidity, color, oil film, floating solids, foams, settleable solids, suspended solids, or deposits).

For any non-compliance that may endanger health or the environment or spills, the facility will follow the notification and reporting requirements in the Agency Notification section of the ISP.

i. Significant Materials

Significant Materials are materials that could degrade or impair water quality, including but not limited to:

- Raw materials used in industry or food processing or production,
- Fuels,
- Salt,
- Solvents,
- Degreasers,
- Plastic pellets,
- Finished materials such as metallic products,
- Hazardous substances designated under Section 101(14) of CERCLA,
- Any chemical the facility is required to report per Section 313 of EPCRA,
- Any material on the Critical Materials Register,
- Hazardous wastes defined in Part 111 of the Michigan Act,
- Fertilizers,
- Pesticides, and
- Waste Products.

The aforementioned that have the potential to be released with storm water discharges shall be identified. Significant materials associated with this facility are identified in Table 1.

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j. Non-Storm Water Discharges/Assessment

Discharges of material other than storm water shall be in compliance with an NPDES permit (other than this general permit) issued for the discharge. Storm water shall only include the following non-storm water discharges with the pollution prevention controls for the non-storm water component:

- Discharges from fire hydrant flushing,
- Potable water sources including water line flushing completed inside the building with drains to sanitary septic system;
- Fire system test water is controlled by inspections of the water quality during the test period,
- Lawn watering is only conducted as needed and limited so that runoff does not occur due to saturated soils,
- Foundation or footing drains where flows are not contaminated with process materials such as solvents.
- Non-contact cooling water from solvent stills,
- Reverse osmosis (RO) wastewater.

Discharges from firefighting activities are authorized by the permit, but do not have to be identified in the SWPPP.

Controls for the aforementioned non-storm water discharges also include the Non-structural controls including inspections that are conducted per the “Inspections, Tests and Records” section of this ISP.

A survey and study to identify non-storm water discharges typically consists of a review of schematics of underground conveyances and identifying sources of dry weather flow. Field investigations may include dye tests, smoke testing, or visual inspections. Familiarity with plant processes/modifications is necessary to ensure that no future illicit non-storm water contributions are discharged to surface waters without obtaining permit authorization.

Non-storm water discharge assessment information is documented on the following table based on when it is completed. Any reports generated are included in the HSE Manager’s files.

Date of Test/ Evaluation	Outfall No.	Test/ Evaluation Method	Results (describe)	Potential Sources	Name of Evaluator

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RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) CONTINGENCY PLAN
[Ref. 40 CFR 264]

RCRA Contingency Plan Elements

According to 40 CFR 264.52(b), if a SPCC has been prepared in accordance with 40 CFR 112, then that plan need only be amended to incorporate hazardous waste management provisions sufficient to comply with the Contingency Plan requirements. The Contingency Plan presented in this section is not a stand-alone plan; the Element Index table incorporates and identifies the location of the required elements throughout this Integrated Spill Plan and other Transtar Emergency Response Documents. The element index and this Integrated Spill Plan (ISP) describes the actions that facility personnel must take in response to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water at the facility.

The Transtar facility generates more than 1,000 kilograms of hazardous waste each month and is therefore a large quantity generator of hazardous waste. According to 40 CFR 264 Subpart D, the details and requirements itemized in Table 5 RCRA Contingency Plan Element Index must be identified where hazardous wastes are stored/accumulated. Copies of the Contingency Plan must be available at the site and to all emergency organizations that might respond to an incident at the facility (40 CFR 264.53). The Contingency Plan and Emergency Procedures (40 CFR 264.56) must be updated to reflect changes in personnel, the facility, materials, and processes, and regulations (40 CFR 264.54).

In order to meet the requirements of 40 CFR 264.52(c) regarding arrangements and/or attempting arrangements with local agencies and emergency responders, the following table identifies the parties that have been sent, have received, and accepted the Transtar Autobody Technologies, Inc. Integrated Spill Plan.

Agency	Date Plan Sent	Plan Receiver	Receipt Date	Comments

Transtar Autobody Technologies, Inc Brighton, Michigan	Integrated Spill Plan
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The following is the sample letter that is sent to agencies for agreements to respond:

(Insert Date)

Mr./Ms.
Hospital
Risk Management/ ER Manager
15050 Farmington Road
Livonia, MI 48154

Subject: Transtar Autobody Technologies, Inc. Brighton Facility
Integrated Spill Plan with RCRA Contingency Plan

Dear [redacted]:

The Transtar Autobody Technologies, Inc. Brighton Facility (Transtar), 2040 Heiserman Drive in Brighton, Michigan is submitting to your office a copy of the Integrated Spill Plan which was recently updated. This plan includes sections to address the requirements of RCRA Contingency Plan and describes the actions that Transtar personnel plan to utilize in response to fires, explosions, or release of hazardous wastes.

U.S. Environmental Protection Agency (EPA) regulations require that the RCRA Contingency Plan be submitted to the local police departments, fire departments, hospitals, and state and local response teams that may be called upon to provide emergency services. The purpose of the submittal is to familiarize you with the Transtar facility layout, hazardous waste storage locations, and emergency procedures.

U.S. EPA regulations further require that when state or local authorities do not agree to provide emergency services for a facility requiring a RCRA Contingency Plan, a written record of the inability to provide services must be filed at the facility. Please inform us if you cannot provide emergency services for the Transtar facility. If we do not receive notice from you by within 2 weeks, it will be assumed that you have accepted the enclosed plan, and that you agree to provide emergency services should they be needed at or by the Transtar facility.

Please **DESTROY** any previous issues of the plan that you may have in your files.

If you and/or your staff representative(s) would like to discuss this Integrated Spill Plan in greater detail, please contact Kathy Straccia at 810-220-3007.

Kathryn S. Straccia
EHS Manager & Regulatory Affairs
Transtar Autobody Technologies, Inc. Brighton Plant

Enclosure

Transtar Autobody Technologies, Inc Brighton, Michigan	Integrated Spill Plan
Issue Date: August 29, 2007	Revision Date: August 5, 2009

RCRA Contingency Plan Element Index

Table 6

Large Quantity Generators

RCRA Element	40 CFR Citation	Plan/Section Description	Location
Contingency Plan	264.52	Integrated Spill Plan-RCRA Contingency Plan Section	"RCRA Contingency Plan Element Section" p. 73
Telephone Number of Fire Department, other Outside Emergency Response Units	264.34	Integrated Spill Plan-SPCC Section	"Discharge Discovery and Response" p. 28
Description of Emergency Response Actions- The actions facility personnel must take to comply with 40 CFR 264.51 and 264.56 in response to fires, explosions, or any unplanned release of hazardous wastes.	264.52(a)	Integrated Spill Plan-SPCC and	"Emergency Response" p. 29
Personnel Training: All employees including the Emergency Coordinators (Primary and Secondary) have received training for their responsibilities including normal waste handling and emergency procedures.	262.34	Integrated Spill Plan-RCRA Contingency Plan and SPCC Sections	"Personnel Training and Discharge Prevention Procedures" p. 52
SPCC Plan, amended to include hazardous waste	264.52(b)	Integrated Spill Plan-RCRA Contingency Plan and SPCC Sections	Integrated Spill Plan Certification p. 1, "RCRA Contingency Plan Elements" p. 75 and Table 1 p. 14
A description of the arrangements or attempts to make arrangements agreed to by local emergency organizations (police/fire departments, hospitals, contractors) and Response Teams	264.52(c), 264.37	Integrated Spill Plan-RCRA Contingency Plan Section	In HSE Manager's Office and on page 73 Table
Name, Address and Numbers of Emergency Coordinator (both office and home) of all persons qualified to act as Emergency Coordinator. The plan must identify a facility Emergency Coordinator. The Emergency Coordinator must be designated to have the authority to carry out the Contingency Plan	264.52 (d), 264.55	Integrated Spill Plan-SPCC Section	"Discharge Discovery and Response" p. 29
List of All Emergency Equipment at the facility including the locations and description of each item and a brief outline of its capabilities. This equipment could include, where required, fire extinguishing systems, fire control equipment, and the following:	264.52(e)	Integrated Spill Plan-SPCC Section	"Discharge Discovery and Response" p. 29, Table 2 Appendix A Figure 2, Appendix C Emergency Equipment Lists/Inspections

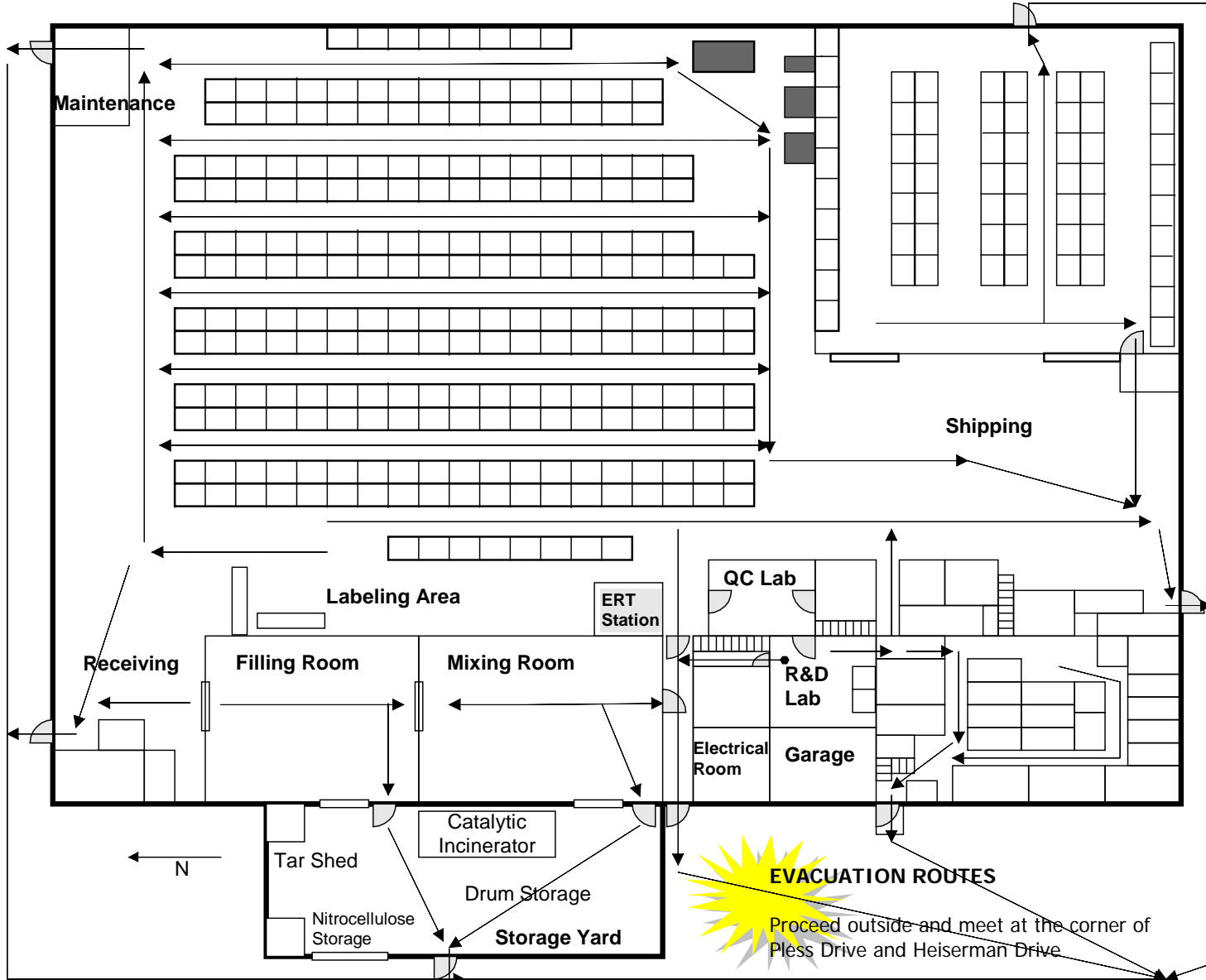
Transtar Autobody Technologies, Inc Brighton, Michigan	Integrated Spill Plan
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RCRA Element	40 CFR Citation	Plan/Section Description	Location
Location/Description of Internal Communication Systems and Fire Alarm	264.52(e)	Integrated Spill Plan-SPCC Section	"Discharge Discovery and Response" p. 29, Table 2 Appendix A Figure 2
Location/Description of Spill Control Material	264.52(e)	Integrated Spill Plan-SPCC Section	"Discharge Discovery and Response" p. 29, Table 2 Appendix A Figure 2, Appendix C Emergency Equipment Lists/Inspections
Location/Description of Decontamination Equipment	264.52(e)	Integrated Spill Plan-SPCC Section	"Discharge Discovery and Response" p. 29, Table 2, Appendix A Figure 2, Appendix C Emergency Equipment Lists/Inspections
Employee Evacuation Plan - An evacuation plan for facility personnel. This plan must describe signals to be used to begin evacuation, evacuation routes, and alternate evacuation routes.	264.52(f)	Integrated Spill Plan- Resource Conservation and Recovery Act Contingency Plan Section	See "Evacuation Routes Map" in this section pg. 77 and the "Plant Emergency Plan" on page 79

Copies of the contingency plan and all revisions must be maintained by the facility and submitted to all local responders and response teams. (40 CFR 262.53) Evacuation drills will be held semiannually.

The contingency plan must be reviewed and immediately amended per 40 CFR 265.54, if necessary:

- Whenever applicable regulations are revised;
- The plan fails in an emergency;
- The facility changes its design, construction, operation or maintenance or other circumstances in a way that materially increases the potential for fires, explosions, or releases of hazardous wastes or their constituents or changes the response necessary in an emergency;
- The list of emergency coordinators changes;
- The list of emergency equipment changes.



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Plant Emergency Plan (ERT-022)

- The three (3) Emergency Conditions are **Evacuation**, **Take Shelter**, and **All Clear**.

Evacuations will be signaled by the fire alarm or by announcement over the plant paging system with the appropriate Code followed by whether the emergency requires in-plant evacuation (Take Shelter)/assembly or entire plant evacuation to the corner of Heiserman Drive and Pless Road. The entire plant will be issued by the fire alarm or paging system when conditions exist that requires the evacuation of the plant (e.g. Fires and/or explosions bomb threats, etc.).

Take Shelter will be signaled using the plant paging system using the appropriate Code announcement with directions to Take Shelter at the R and D Lab (e.g. Tornadoes identified moving in a path within 1/2 mile of the plant, or high winds which could cause structural damage to the plant).

All Clear will be signaled by announcement by the Emergency Response Coordinator or designee when it is clear to return to work.

- Emergency Codes:

For all spills or emergencies, personnel notifying the plant of an emergency including notification of the Emergency Response Coordinator shall go to the nearest phone and dial "60" to activate the plant paging system and identify the emergency with the following codes which are communicated to employees via handout in Appendix B:

Code 1 – Fire or use the traditional manual fire alarm actuators

Code 2 – Personnel

Code 3 – Spill

Code 4 – Weather

Personnel issuing an emergency code shall state, "ERT to (location) Code ____." and repeat the message five times.

- During Plant Emergencies, employees should move to designated areas in a safe and orderly fashion. During Plant Emergencies, employees are not to drive any motorized vehicles (e.g. fork trucks, jitneys or personal vehicles in parking lot).
- Supervisors are responsible for understanding and implementing the procedures detailed in the Plant Emergency Plan, including accounting for all personnel in the shelter areas.

Transtar Autobody Technologies, Inc Brighton, Michigan	Integrated Spill Plan
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APPENDIX A
FIGURES

Transtar Autobody Technologies, Inc Brighton, Michigan	Integrated Spill Plan
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**APPENDIX B – EMERGENCY RESPONSE CODES
&
SPILL REPORTING FORMS**

Transtar Autobody Technologies, Inc Brighton, Michigan	Integrated Spill Plan
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For all future spills, a record of each incident will be maintained on the table below:

Date of Spill Incident	Description of Incident, Cause and Amount of Material Released	Corrective Action Taken and Positive Impact on Natural Resources	Preventative Measures

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Insert the Following:
MDEQ Spill or Release Report (2/05)
U.S. DOT Hazardous Materials Incident Report (Form DOT F5800.1 (1/04))

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APPENDIX C – INSPECTION PROCEDURES and FORMS

(The Following are inspections procedures and forms that are included for reference only. Access controlled documents at the Transtar facility electronic system)

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APPENDIX D – NPDES PERMIT

Transtar Autobody Technologies, Inc Brighton, Michigan	Integrated Spill Plan
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APPENDIX E – NPDES STORM WATER SAMPLING DISCHARGE MONITORING REPORTS

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APPENDIX F – EMERGENCY RESPONSE PLANS

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APPENDIX G – COPIES OF ISP DISTRIBUTION LETTERS

LOCATION OF UTILITIES

TRANSRAT AUTOBODY TECHNOLOGIES

2040 HEISERMAN

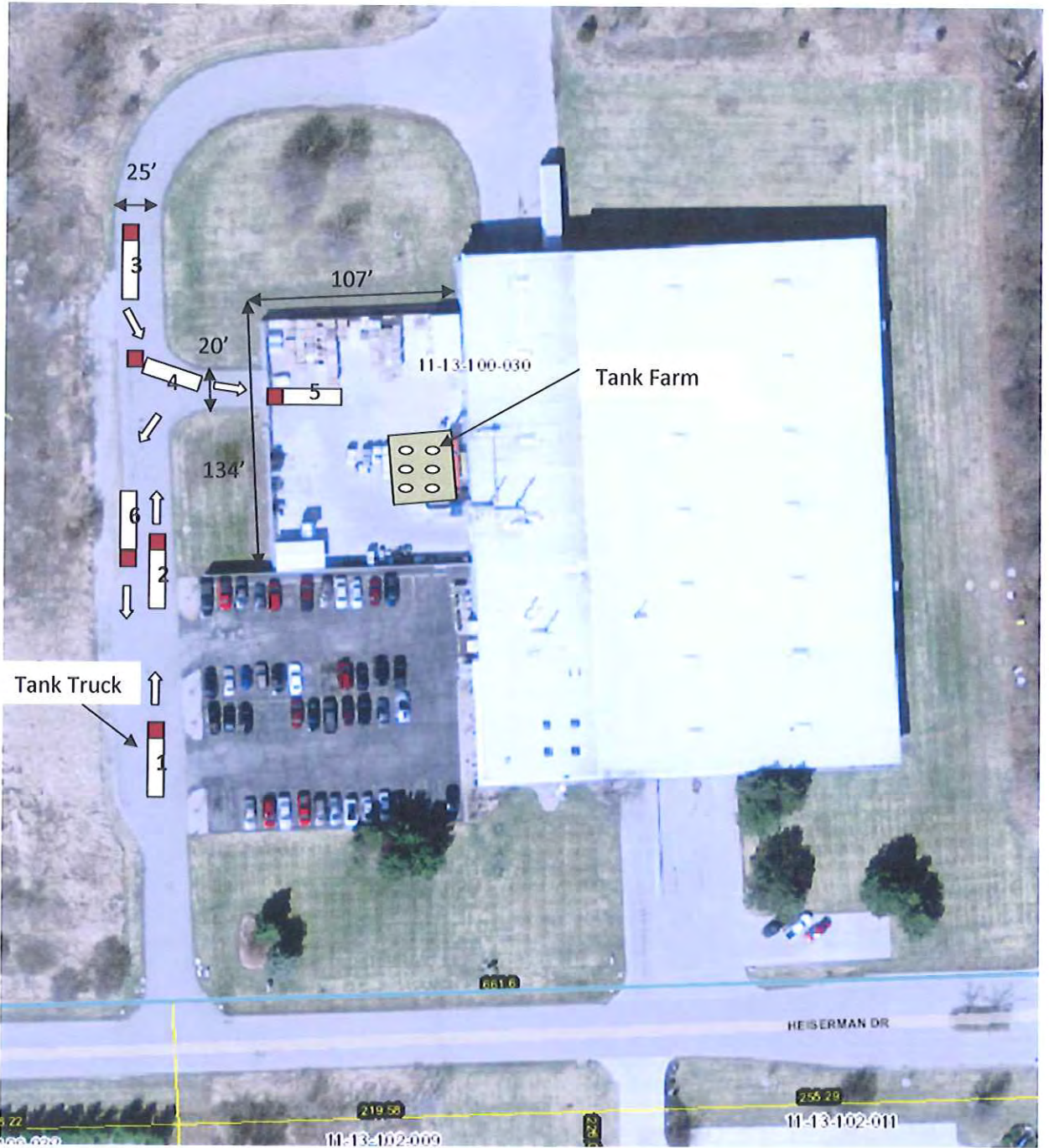
BRIGHTON, MI

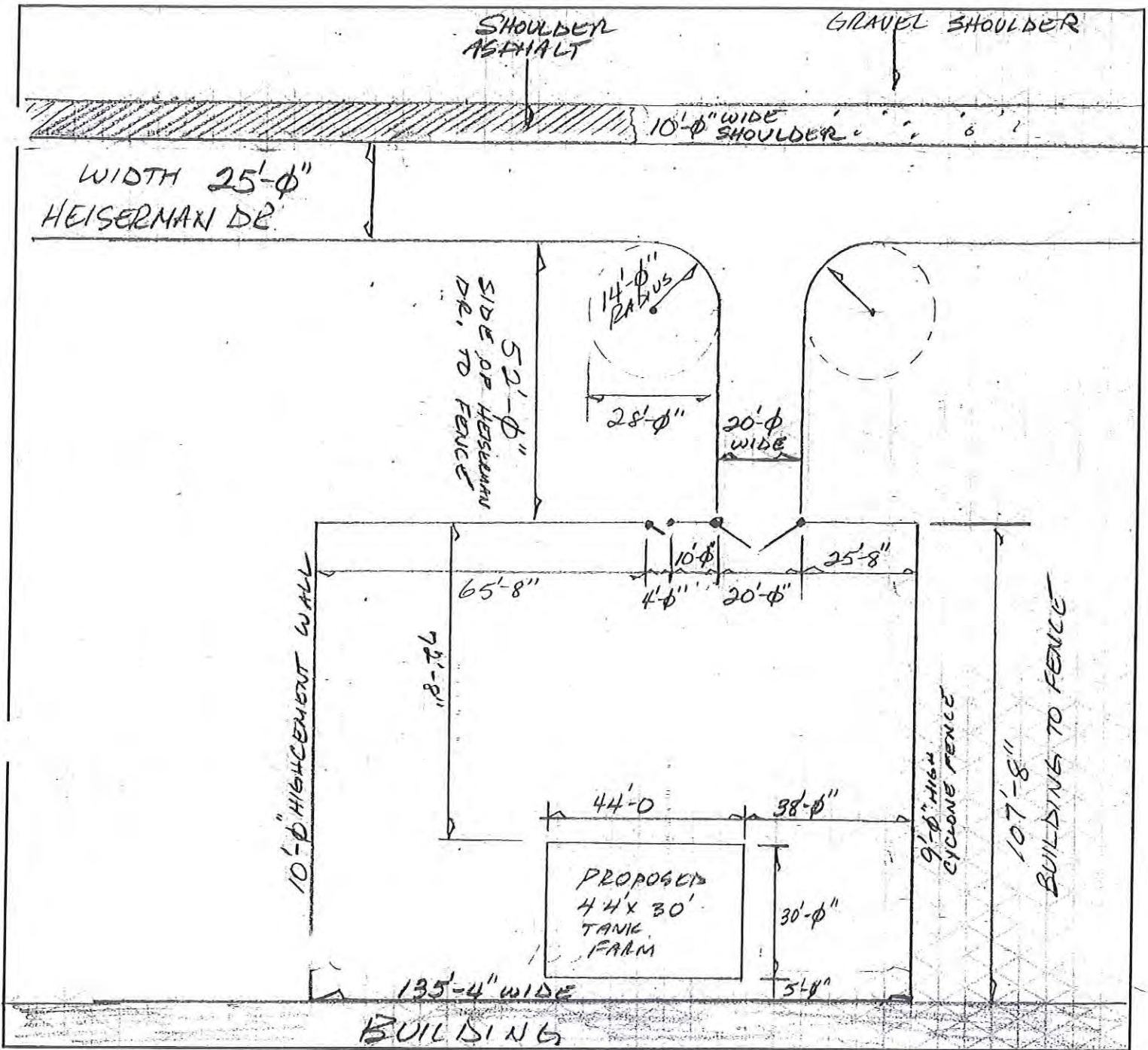


1.Landscaping Plans.

Proposed project will not change existing landscape. However, per recommendation of Planning Commission, Transtar Autobody Technologies may plant multiple deciduous trees, along Heiserman Road to provide additional screening from off site.







FABRICATION TITLE	QUANTITY
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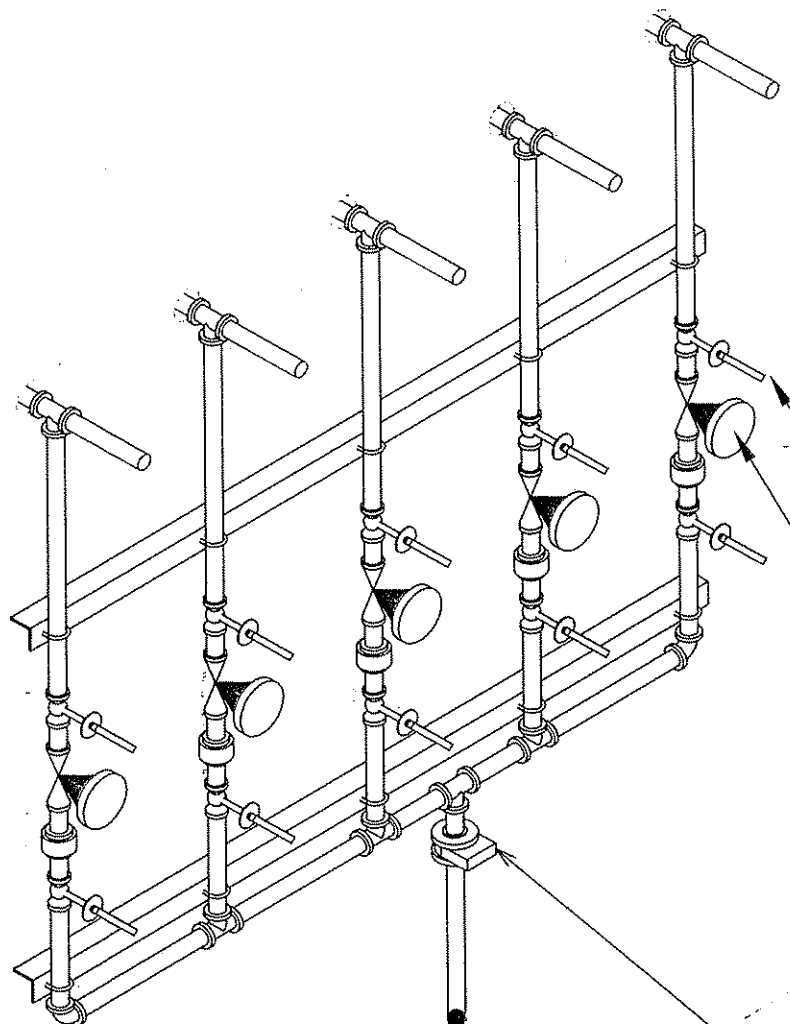
JOB NAME ABOVE GROUND STORAGE TANKS	
JOB ADDRESS 2040 HEISERMAN	
SUBMITTED BY	DATE
CONTACT NUMBER	FAX NUMBER

SYSTEM	DATE NEEDED
MATERIAL ORDERED BY	
<input type="checkbox"/> FIELD FOREMAN	<input type="checkbox"/> SHOP FOREMAN
<input type="checkbox"/> PURCHASING	
NOTES	

WJO W. J. O'NEIL COMPANY
MECHANICAL CONTRACTORS & PIPE FABRICATION

35457 INDUSTRIAL LIVONIA, MI 48150 OFFICE (734) 458-2300 FAX (734) 458-2305

FABRICATION WORK ORDER			
JOB NUMBER	SHEET NUMBER	REVISION	COST CODE



ISOLATION VALVE (TYPICAL 10)

SOLENOID VALVE (TYPICAL 5)

METER

HARD-PIPED TO
MIX-TANK #1

REV.	DATE	REVISION DESCRIPTION
2	8/03/12	UPDATED OUTLET
1	7/24/12	CHANGED VALVE STATION ORIENTATION
0	6/12/12	PROPOSAL

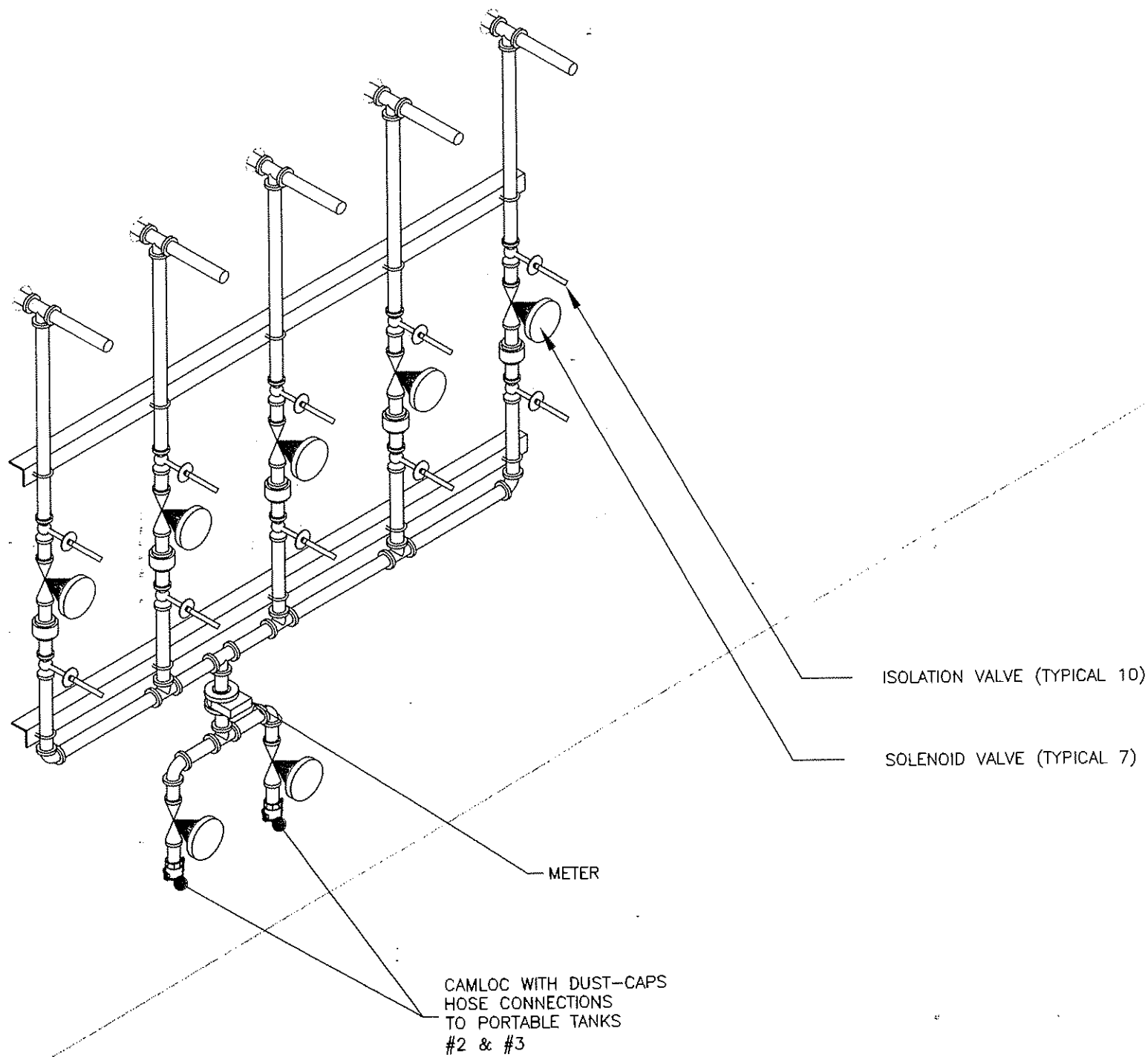
WJO W.J. O'Neil Company
MECHANICAL CONTRACTORS

35457 Industrial Livonia, MI 48150 Phone: 734.458.2300 Fax: 734.458.2305

DRAWN BY JTH	DATE 6/12/12	SCALE NONE
PROJECT NUMBER	PROJECT NAME TRANS STAR	

DRAWING TITLE
**STATION
1**

DRAWING NUMBER M-1.1	REVISION 3
--------------------------------	----------------------



REV.	DATE	REVISION DESCRIPTION
2	8/03/12	UPDATED OUTLET
1	7/24/12	CHANGED VALVE STATION ORIENTATION
0	6/12/12	PROPOSAL

WJO W.J. O'Neil Company
MECHANICAL CONTRACTORS

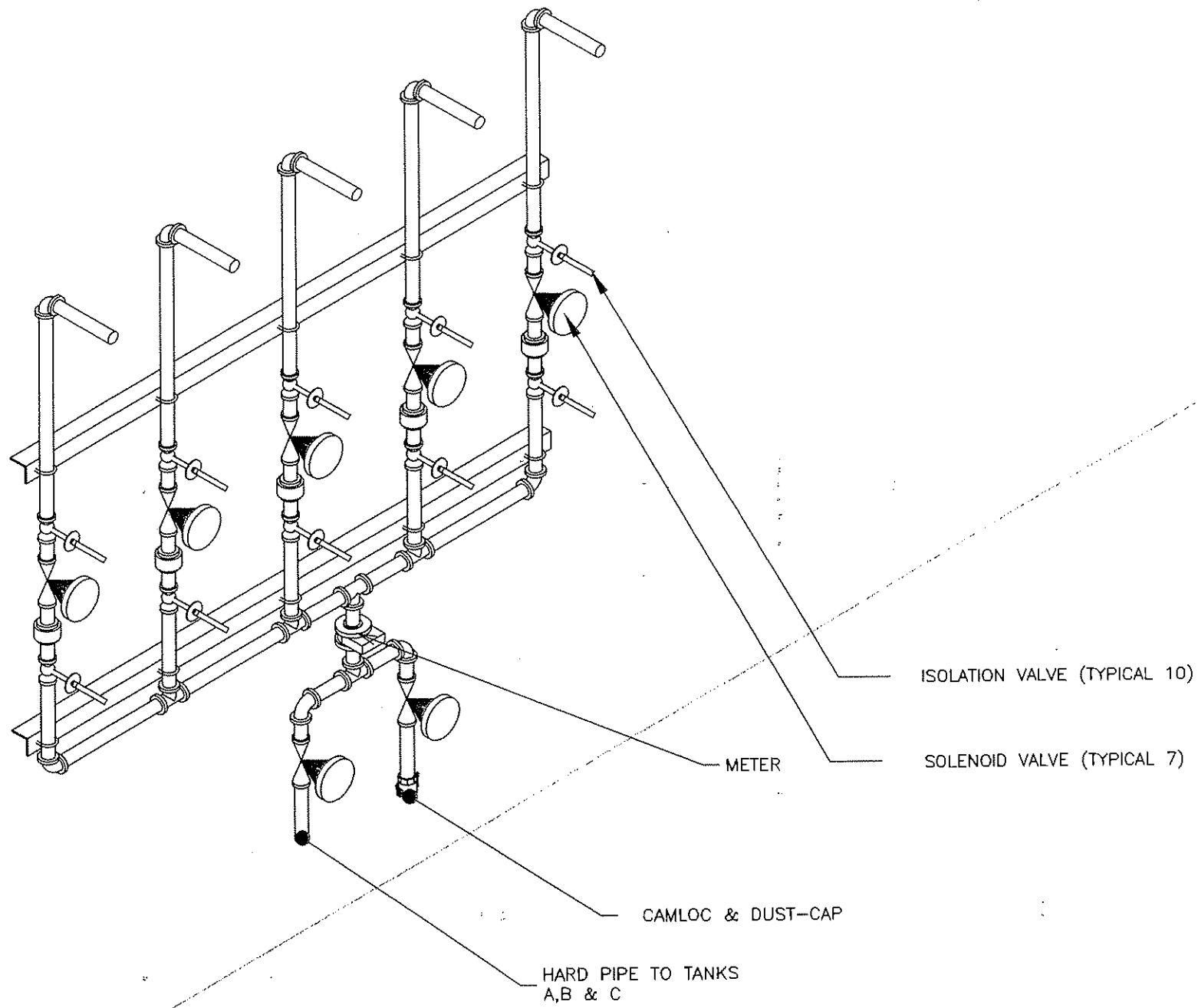
35457 Industrial Livonia, MI 48150 Phone: 734.458.2300 Fax: 734.458.2305

DRAWN BY JTH	DATE 6/12/12	SCALE NONE
PROJECT NUMBER	PROJECT NAME TRANS STAR	

DRAWING TITLE

**STATION
2**

DRAWING NUMBER	REVISION
M-1.2	3



REV.	DATE	REVISION DESCRIPTION
2	8/03/12	UPDATED OUTLET
1	7/24/12	CHANGED VALVE STATION ORIENTATION
0	6/12/12	PROPOSAL

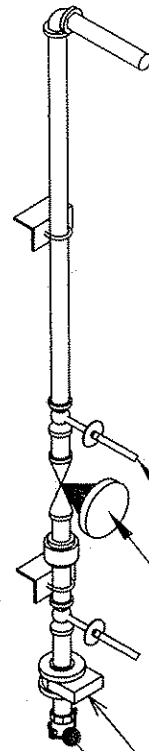
WJO W.J. O'Neil Company
MECHANICAL CONTRACTORS

35457 Industrial Livonia, MI 48150 Phone: 734.458.2300 Fax: 734.458.2305

DRAWN BY JTH	DATE 6/12/12	SCALE NONE
PROJECT NUMBER	PROJECT NAME TRANS STAR	
DRAWING TITLE		

STATION
3

DRAWING NUMBER M-1.3	REVISION 3
--------------------------------	----------------------



ISOLATION VALVE (TYPICAL 2)

SOLENOID VALVE

METER

CAMLOC & DUST-CAP

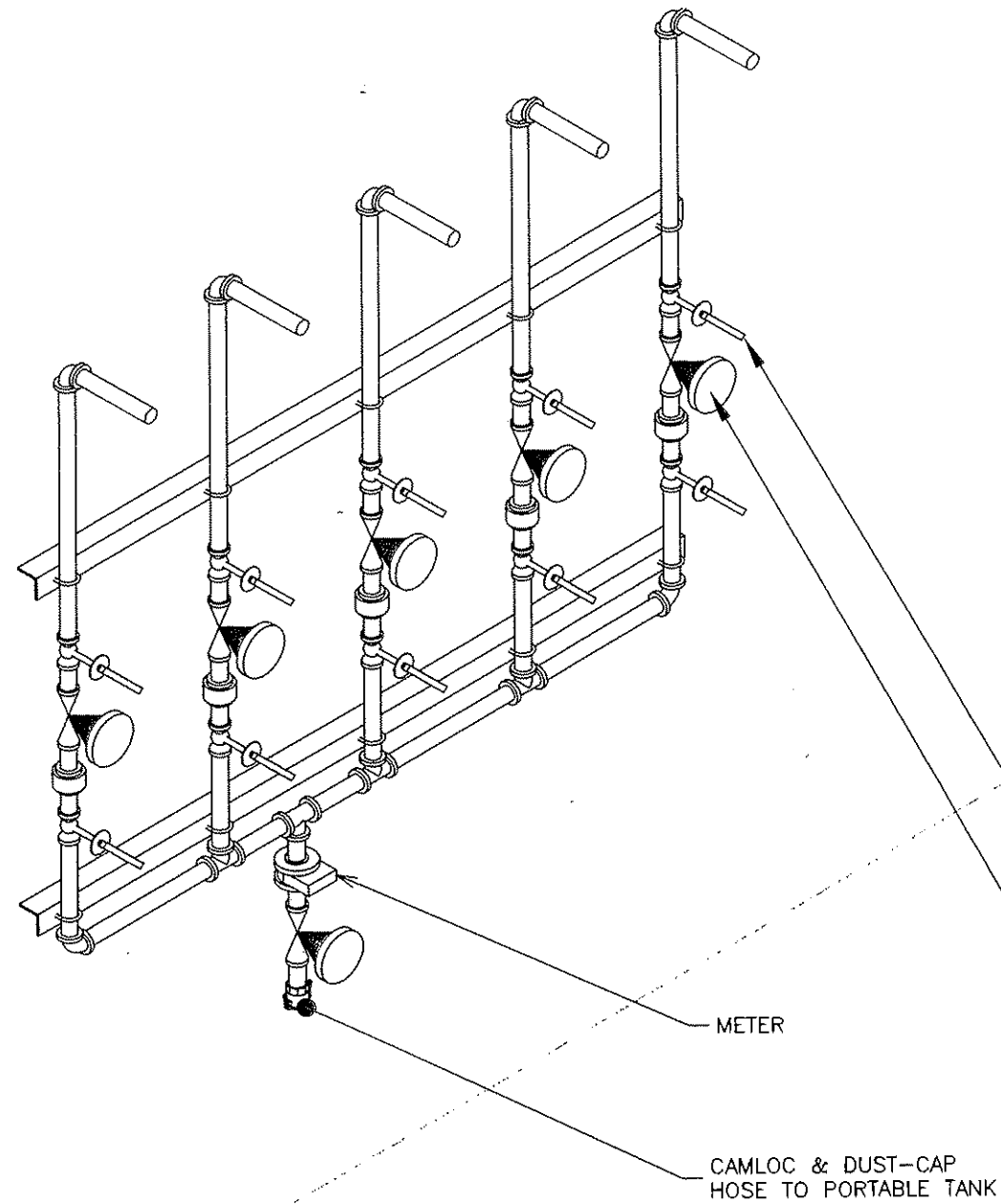
REV.	DATE	REVISION DESCRIPTION
1	7/24/12	CHANGED VALVE STATION ORIENTATION
0	6/12/12	PROPOSAL


WJO W.J. O'Neil Company
 MECHANICAL CONTRACTORS
 35457 Industrial Livonia, MI 48150 Phone: 734.458.2300 Fax: 734.458.2305

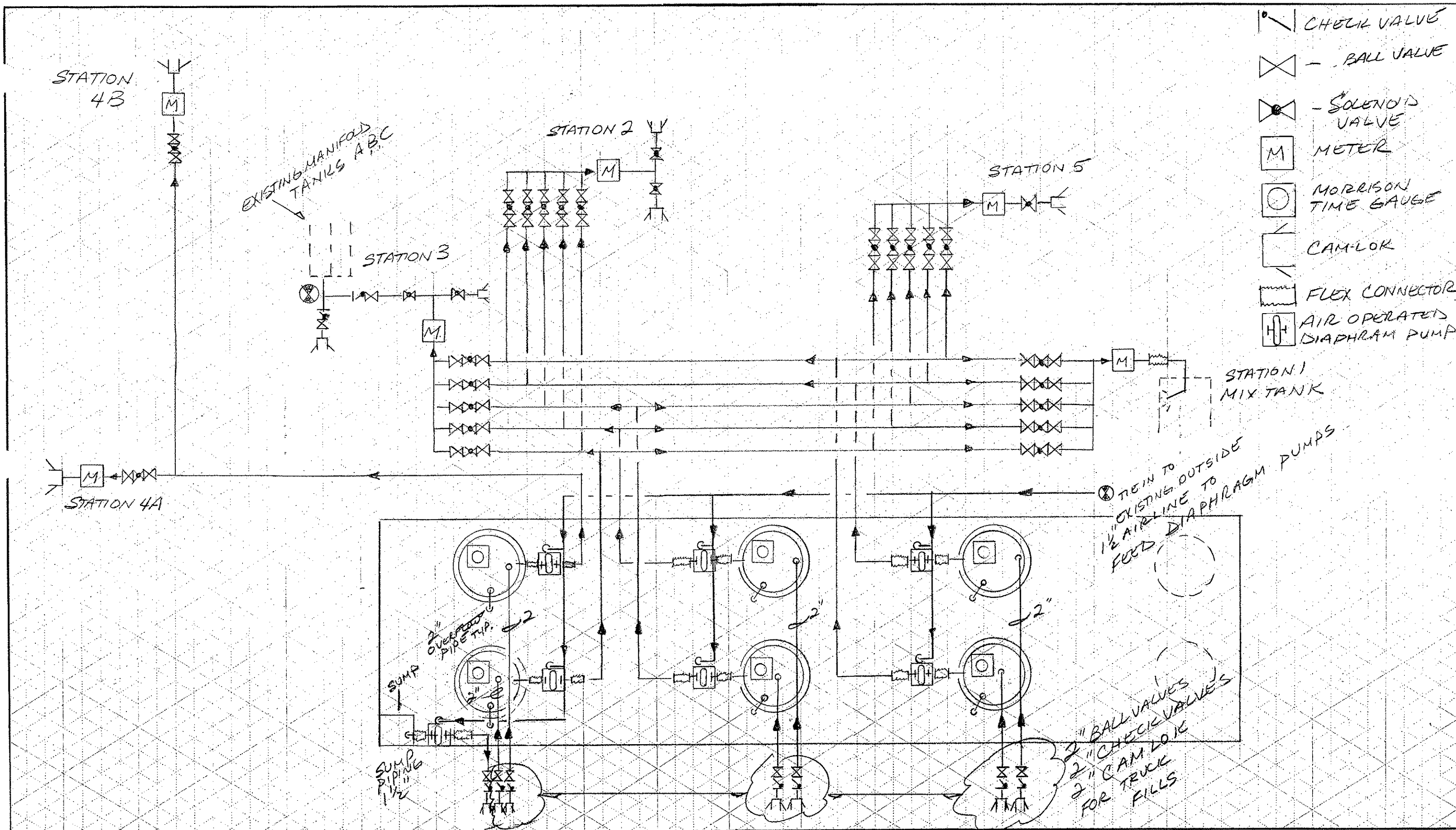
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PROJECT NUMBER	PROJECT NAME TRANS STAR	

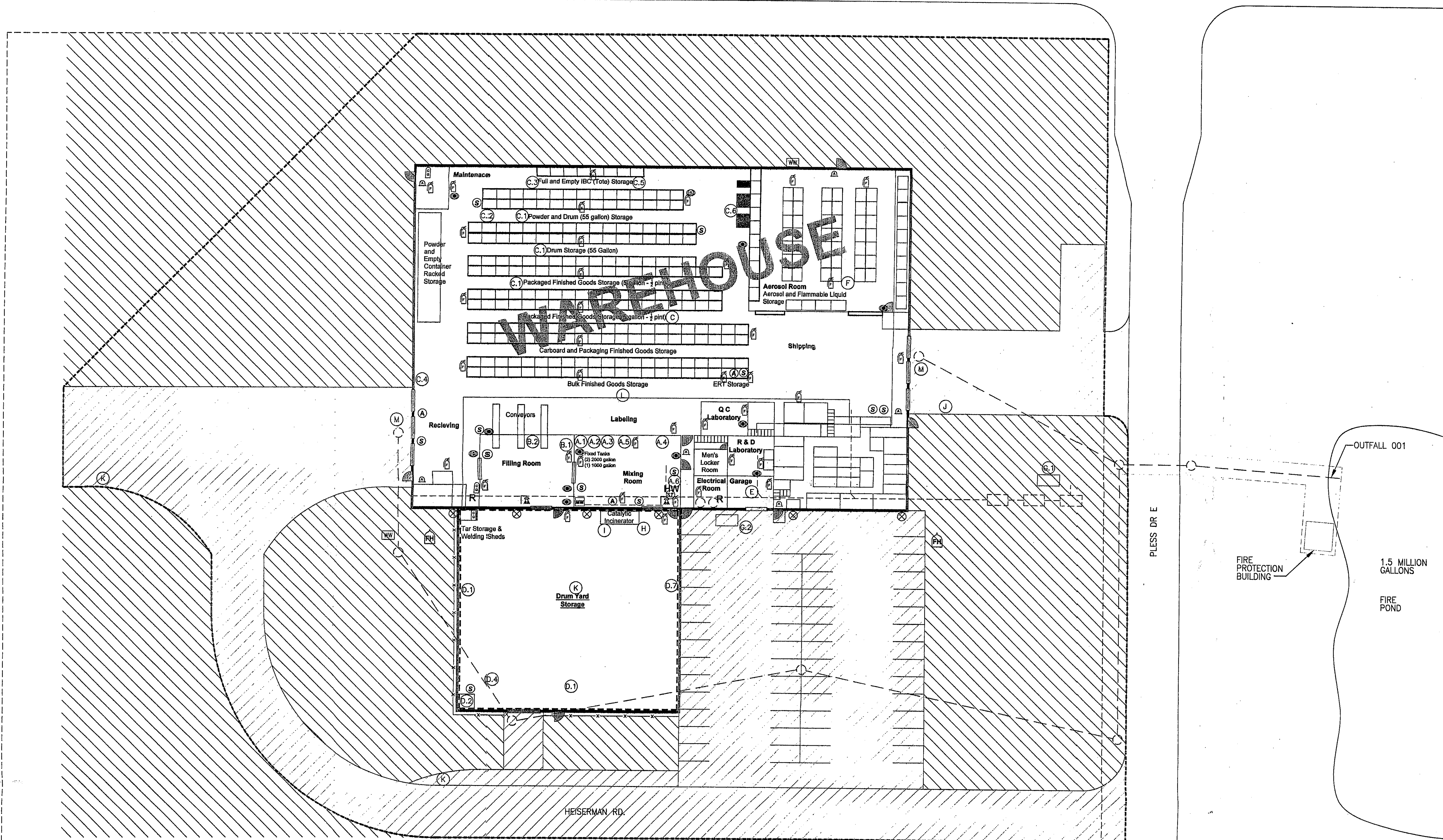
DRAWING TITLE
 STATION
 4

DRAWING NUMBER M-1.4	REVISION 2
--------------------------------	----------------------



1	8/03/12	UPDATED OUTLET
0	7/24/12	ADDED VALVE STATION
REV.	DATE	REVISION DESCRIPTION
 W.J. O'Neil Company MECHANICAL CONTRACTORS		
35457 Industrial Livonia, MI 48150		Phone: 734.458.2300 Fax: 734.458.2305
DRAWN BY JTH	DATE 7/24/12	SCALE NONE
PROJECT NUMBER	PROJECT NAME TRANS STAR	
DRAWING TITLE		
STATION 5		
DRAWING NUMBER		REVISION
M-1.5		2





- (A) MIX ROOM**
 - A.1 (1) 2,500-GAL. FLAMMABLE PRODUCT AST
 - A.2 (1) 2,200-GAL. FLAMMABLE PRODUCT AST
 - A.3 (1) 1,000-GAL. FLAMMABLE PRODUCT AST
 - A.4 (15) 550-GAL. FLAMMABLE PRODUCT MIX TANKS
 - A.5 55-GAL. DRUMS-VARIOUS MATERIALS (SEE TABLE 1)
 - A.6 (6) 55-GAL. HAZARDOUS WASTE DRUMS
- (B) FILL ROOM**
 - B.1 (4) 55-GAL. VARIOUS FLAMMABLE SOLVENT DRUMS
 - B.2 (1) 55-GAL. HAZARDOUS WASTE ACCUMULATION DRUM
- (C) WAREHOUSE**
 - C.1 55-GAL. DRUMS-VARIOUS MATERIALS (SEE TABLE 1)
 - C.2 VARIOUS NON-ISP REGULATED SOLIDS (SEE TABLE 1)
 - C.3 EMPTY TOTES (SEE TABLE 1)
 - C.4 EMPTY MIX TANKS (SEE TABLE 1)
 - C.5 55-GAL.-550-GAL. DRUMS AND TOTES-VARIOUS MATERIALS
 - C.6 (5) 3,000-LB(80-GAL.) FORKLIFT BATTERIES

- (D) DRUM YARD** STRUCTURAL CONTROLS: CONTAINMENT CURBING, PAVEMENT, GRADING TO DRAIN TO 200-GAL. HOLDING TANK
 - D.1 55-GAL. DRUMS-VARIOUS MATERIALS (SEE TABLE 1)
 - D.2 (25) 55-GAL. NITROCELLULOSE DRUMS
 - D.3 (8) 330-GAL. EMPTY TOTES
 - D.4 (1) 200-GAL. STORM WATER RUNOFF SPILL UST
- (E) GARAGE** STRUCTURAL CONTROLS: COVERED, SECONDARY CONTAINMENT
 - (1) 55-GAL. ACETIC ACID DRUM
- (F) AEROSOL ROOM**
 - AEROSOL PRODUCT CONTAINER STORAGE
- (G) TRANSFORMER (DTE OWNED/OPERATED)**
 - STRUCTURAL CONTROLS: COVERED, PAVED PAD
 - G.1 (1) 300-GAL. TRANSFORMER, COVERED, PAVED PAD
 - G.2 (1) 300-GAL. TRANSFORMER, COVERED, PAVED PAD
- (H) FORKLIFT TRACKING OF PAINTS/SOLVENTS**
 - STRUCTURAL CONTROLS: PAVEMENT, CONTAINMENT CURBING DRAIN TO HOLDING TANK

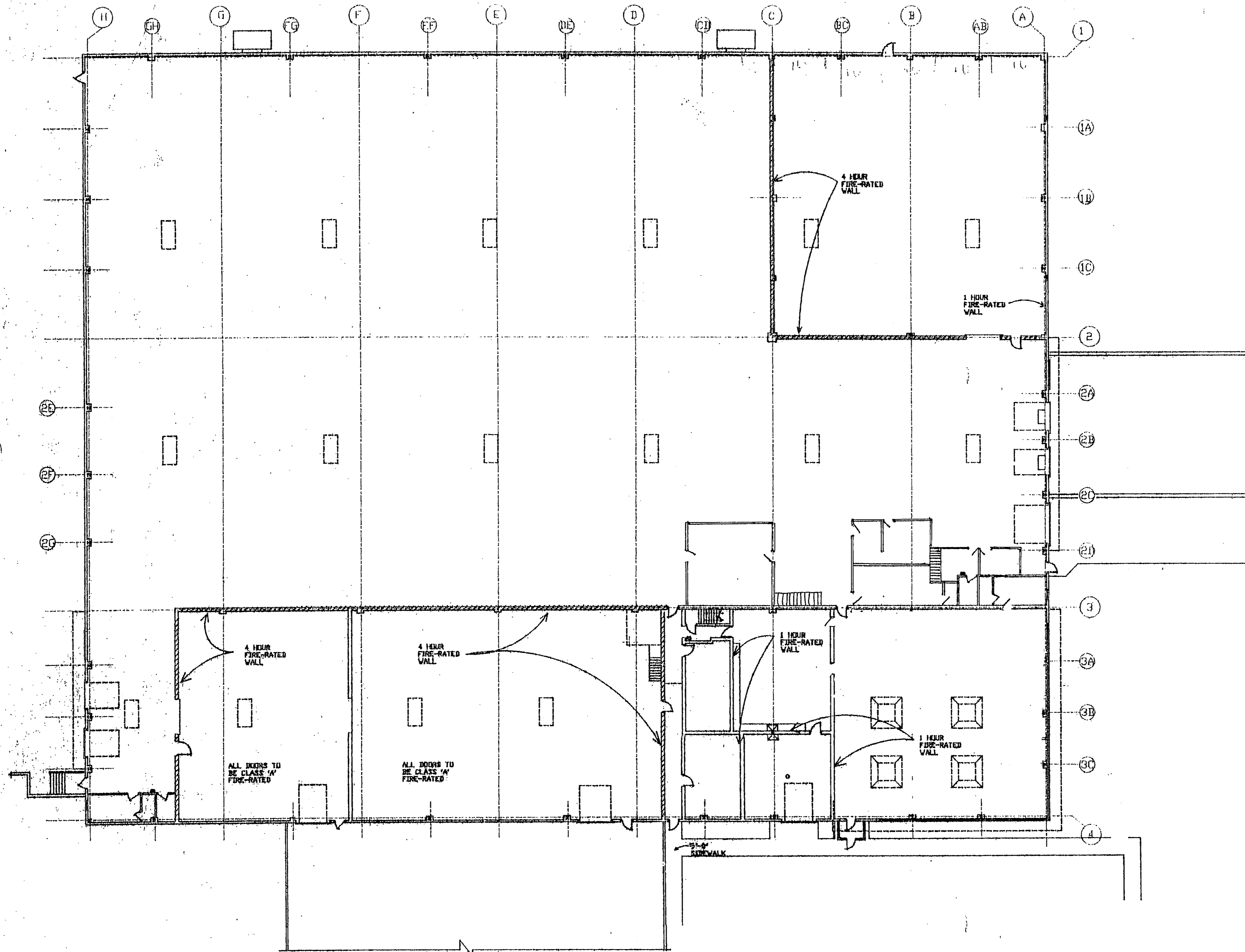
- (I) CATALYTIC INCINERATOR PARTICULATE**
 - STRUCTURAL CONTROLS: PAVEMENT, CONTAINMENT CURBING, DRAIN TO HOLDING TANK
- (J) GENERAL TRASH TRANSFER AREA**
 - STRUCTURAL CONTROLS: PAVEMENT, GRADING
- (K) SEMITRAILER STAGING**
 - STRUCTURAL CONTROLS: PAVEMENT
- (L) ROOF**
- (M) SHIPPING AND RECEIVING DOCKS CONTAINER HANDLING**
 - STRUCTURAL CONTROLS: PAVED, GRADED, CONTAINMENT CURBING

LEGEND

DOOR	FIRE HYDRANT	EYE WASH/SHOWER STATION
GARAGE TYPE DOOR	FIRE EXTINGUISHER	HAZARDOUS WASTE STORAGE
SPILL KIT	FULL DOWN FIRE ALARM	COMPRESSED GASES
ACID SPILL KIT	RISER	EYE WASH BOTTLE
STILL	NON-POTABLE WATER	PORTABLE EYE WASH
INCOMING CITY WATER	NON CONTACT COOLING WATER	MILLING MACHINE
CHAINLINK FENCE	VEGETATION/PERVIOUS	DOWNSPOUT FROM ROOF
TRANSTAR EASEMENT	PROPERTY BOUNDARY	PAVING/IMPERVIOUS
SEPTIC SYSTEM DRAINS	STORM WATER DRAINS	RACKS
DRUM YARD DRAINAGE AREA	OUTFALL 001 DRAINAGE AREA	

DESIGNED	CHECKED		
SCALE	CADD DATE 10/10/2007 4:17 PM		
PART PA200-19791-07-001\01\CADD\SARMAP.DWG			
TRANSTAR AUTOBODY TECHNOLOGIES, INC.			
FIGURE 2 INTEGRATED SPILL PLAN SITE PLAN			
DIVISION	CONTRACT	SHEET	OF

PLOT DATE: 10/10/2007 11:57 AM LAST EDITED BY: PLOT DEVICE: KES BETA - P:\phillips



FIRE-RATING PLAN
SCALE: 1/16" = 1'-0"



NORTH

OWNER: TREMED MFG. CO.
3685 GRAND RIVER
NEW HUDSON, MICHIGAN 48151-497-6869

PROJECT: TREMED, INC./SUB./B.F. GOODRICH, CORP.
EAST INDUSTRIAL DRIVE
BRIGHTON, MICHIGAN

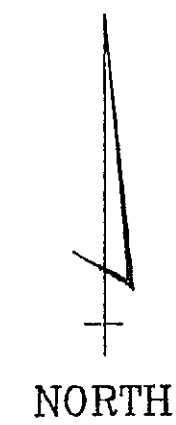
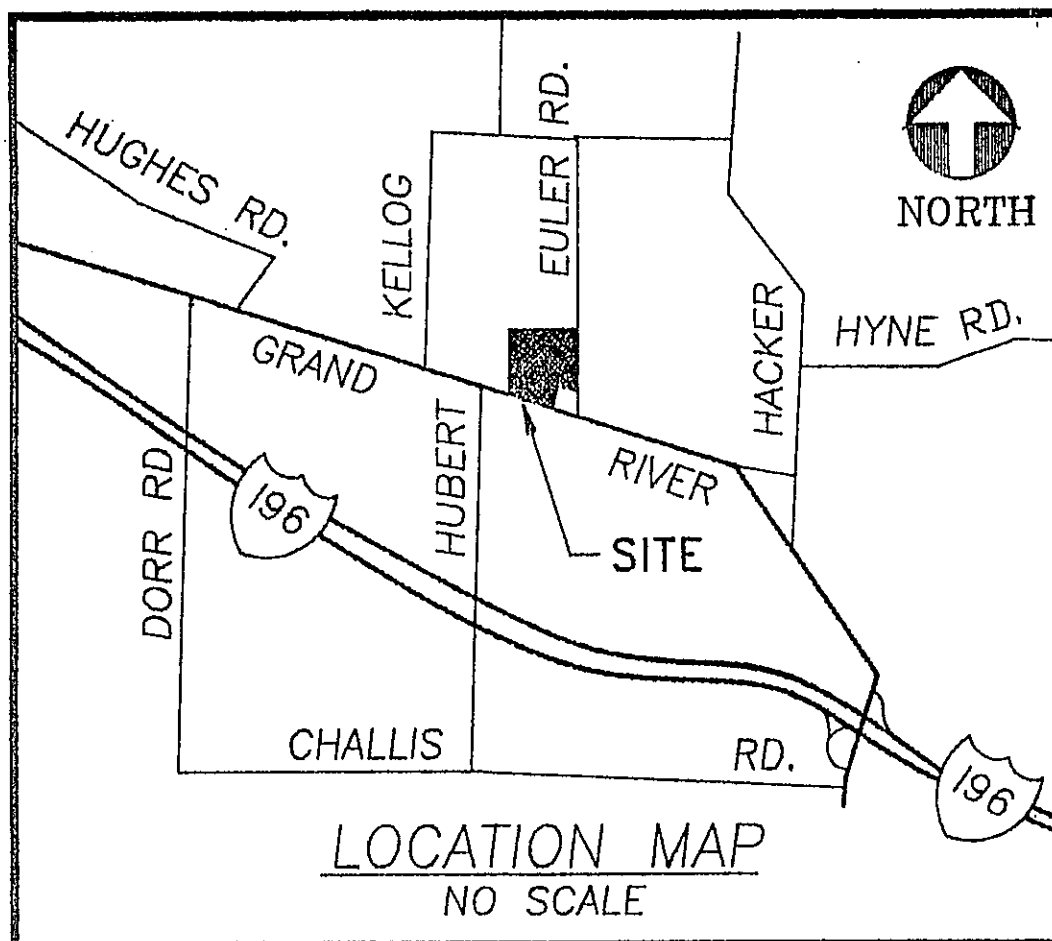
McHugh - Garbutt
Architects / Engineers

Brighton, Michigan 313-227-3798
East Detroit, Michigan 313-774-6333

FIRE-RATED
PLAN

Job no.	85095
date	
drawn	
approved	
owner's app.	
marked for	date
SUB-BID	4-7-86

sheet no.
A-3

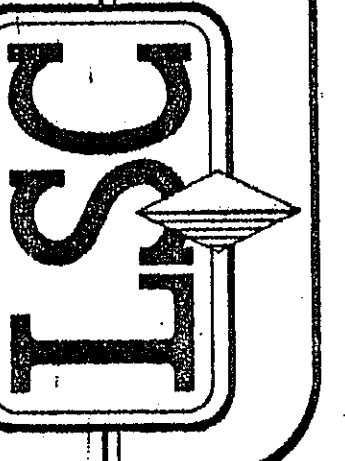


GENOA INDUSTRIAL PARK

GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

UTILITY PLAN

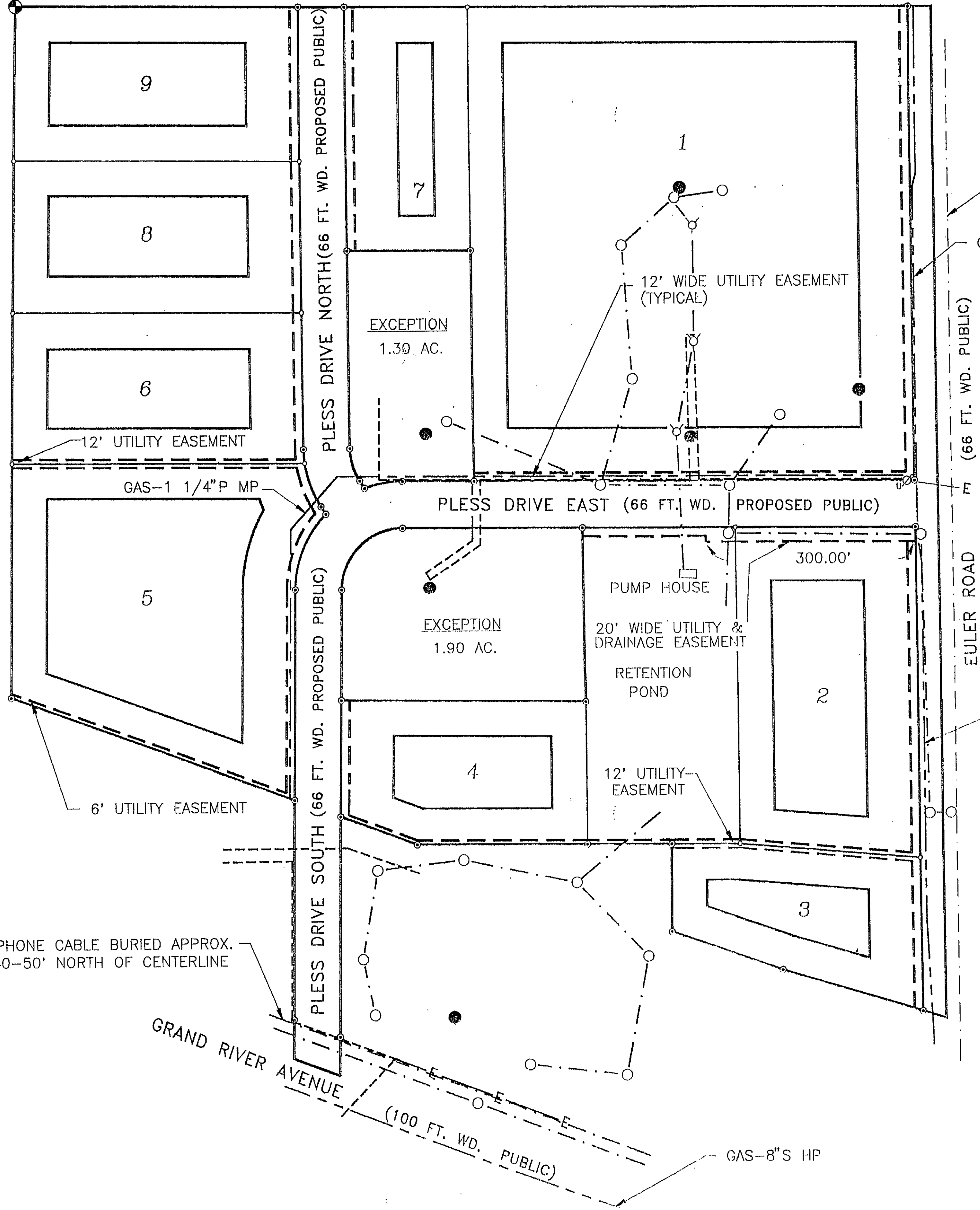
LAND SURVEYING CONSULTANTS
 SURVEYORS - ENGINEERS
 P.O. BOX 65, 3225 CENTRAL ST.
 DENVER, MICHIGAN 48130
 (313) 767-5677



DATE	DESCRIPTION

UTILITY PLAN
 GENOA INDUSTRIAL PARK
 A SITE CONDOMINIUM
 GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

NW CORNER
 SECTION 13
 T2N,R5E



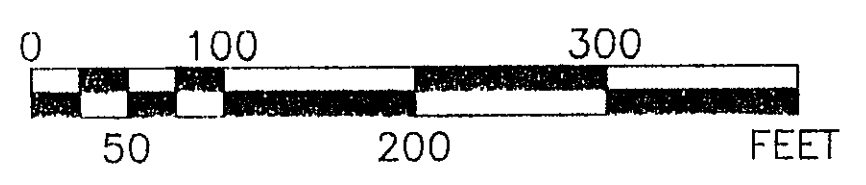
TELEPHONE CABLE BURIED APPROX. 20' EAST OF CENTERLINE

GAS-2" P-MP

EULER ROAD (66 FT. WD. PUBLIC)

GAS-2" S MP

LEGEND	
●	CONCRETE MONUMENT
○	IRON ROD MONUMENT
8	UNIT NUMBER
EXISTING UTILITIES	
●	WELL
○	CATCH BASIN
♀	HYDRANT
---	GAS
—E—	OVERHEAD ELEC.
---	UNDERGRND ELEC.
---	STORM SEWER
---	WATER
---	UNDERGRND TELE.



GENERAL NOTES:

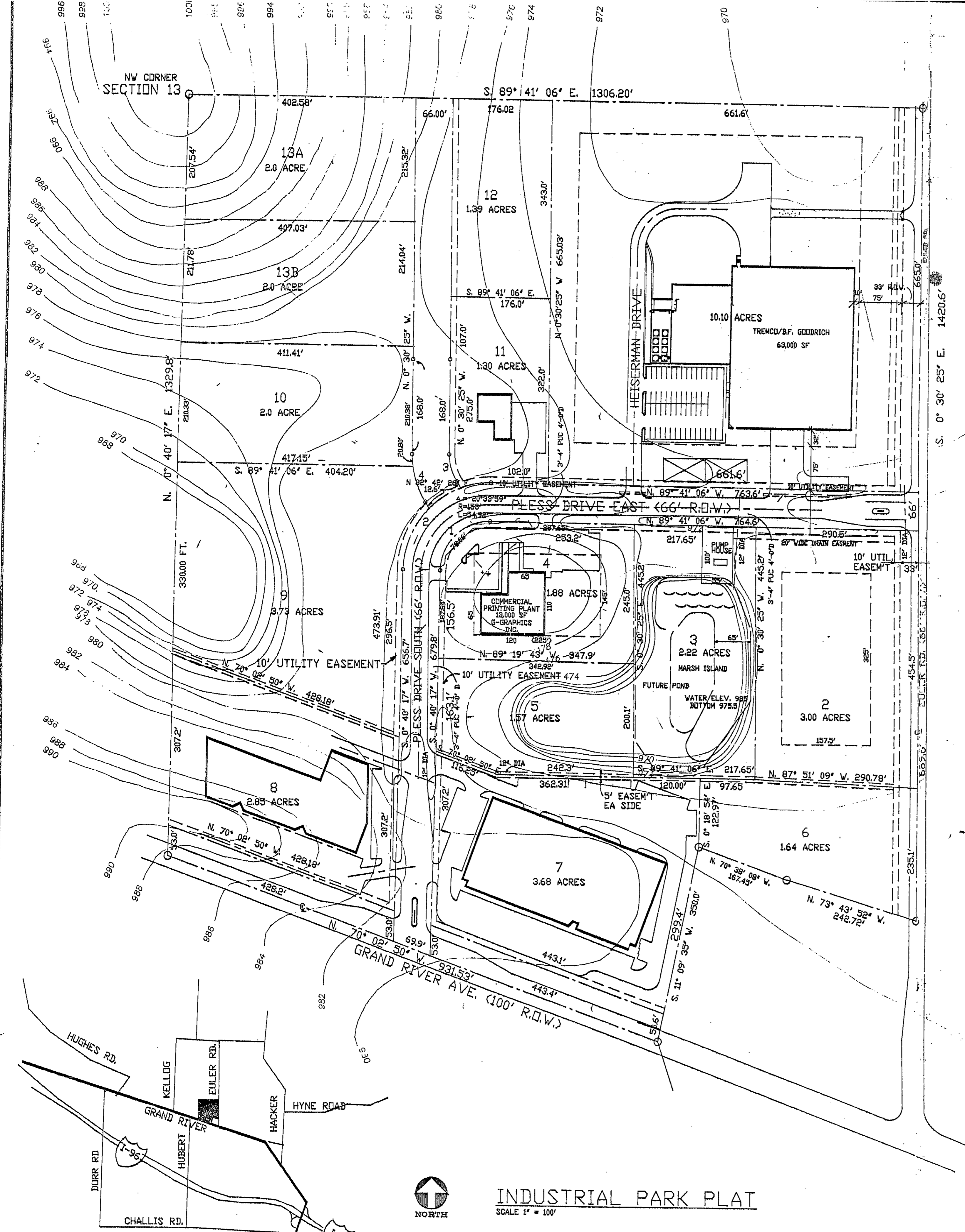
- EACH UNIT IS SERVED WITH INDIVIDUAL SEPTIC SYSTEM AND WELL INSTALLED BY THE CO-OWNER.
- EACH UNIT IS SERVICED WITH POWER BY DETROIT EDISON COMPANY.
- EACH UNIT IS SERVICED WITH GAS BY CONSUMERS POWER COMPANY.
- EACH UNIT IS SERVICED WITH TELEPHONE BY MICHIGAN BELL TELEPHONE COMPANY.
- UTILITY LINES WILL BE SHOWN ON "AS-BUILT" CONDOMINIUM PLANS.
- ALL UTILITIES ARE EXISTING OR MUST BE BUILT.
- ALL GAS, ELECTRIC AND PHONE UTILITY LOCATIONS WERE OBTAINED FROM THEIR RESPECTIVE UTILITY COMPANIES.



DATE: SEPT 1990
 JOB NO: 06490-2N5E13
 DRN: DAO
 SCALE: 1" = 100'

DRAWING NUMBER
3 of 3

R. Timothy Tietsema
 R. TIMOTHY TIETSEMA
 PROFESSIONAL LAND SURVEYOR NO. 20712
 PROPOSED: 1 FEBRUARY 1991



GARBUTT INDUSTRIAL PARK

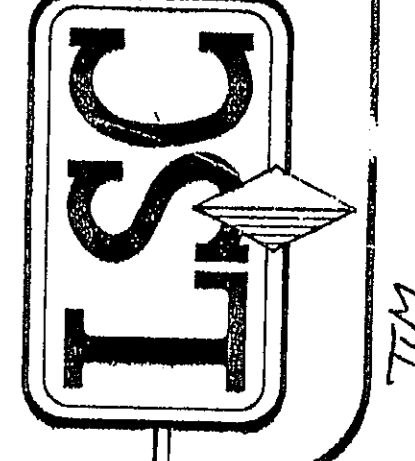
GENOA TOWNSHIP, MICHIGAN

43.95 ACRE PARCEL
 A 43.95 acre parcel of land in the W 1/2 of the NW 1/4 of Section 13, T2N, R5E, Genoa Township, Livingston County, Michigan described as COMMENCING at the NW Corner of said Section 13, said Corner being the POINT OF BEGINNING:
 thence S 89 deg. 41 min. 06 sec. E 1306.20 feet along the North Line of said Section 13;
 thence S 00 deg. 30 min. 25 sec. E 1420.60 feet along the Centerline of Euler Road;
 thence N 78 deg. 43 min. 52 sec. W 242.72 feet;
 thence N 70 deg. 38 min. 08 sec. W 167.45 feet;
 thence S 11 deg. 09 min. 35 sec. W 350.00 feet;
 thence N 70 deg. 02 min. 50 sec. W 931.53 feet along the Centerline of Grand River Avenue;
 thence N 00 deg. 40 min. 17 sec. E 1329.80 feet along the West Line of said Section 13 to the POINT OF BEGINNING,
 being subject to the rights of the public over the easterly thirty-three (33) feet thereof for Euler Road, and subject to the rights of the public over the southerly fifty (50) feet thereof for Grand River Avenue, and subject to easements and restrictions of record, if any.

INDUSTRIAL PARK PLAT
 SCALE 1" = 100'

LOCATION MAP NO SCALE

LAND SURVEYING CONSULTANTS
 SURVEYORS - ENGINEERS
 P.O. BOX 65, 8225 CENTRAL ST.
 DETROIT, MICHIGAN
 (313) 371-6577



DATE	DESCRIPTION

GARBUTT INDUSTRIAL PARK
SITE PLAN
 A Parcel of land in the NW 1/4 Section 13
 T2N, R5E, Genoa Township
 Livingston County, Michigan

DATE	2 APR 1980
BY	PG
JOB NO.	04480-2N5E13
DRW.	CRK
SCALE	1" = 100'
DRAWING NUMBER	1 of 1

PRELIMINARY



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Muskegon, Michigan 49440
Phone: (231)722-4600
Fax: (231)722-4955

www.sidockgroup.com

Key Plan: NO SCALE

GENERAL STRUCTURAL NOTES:

- 1. ALL CONSTRUCTION SHALL COMPLY FULLY WITH THE APPLICABLE PROVISIONS OF MIOSHA AND THE LOCAL GOVERNING CODE, LATEST EDITION, AND ALL REQUIREMENTS SPECIFIED IN THE CODE SHALL BE ADHERED TO AS IF THEY WERE CALLED FOR OR SHOWN ON THE DRAWINGS. THIS SHALL NOT BE CONSTRUED TO MEAN THAT ANY REQUIREMENTS SET FORTH ON THE DRAWING MAY BE MODIFIED BECAUSE THEY ARE MORE STRINGENT THAN THE CODE REQUIREMENTS OR BECAUSE THEY ARE NOT SPECIFICALLY REQUIRED BY CODE.
2. ANY EXISTING CONSTRUCTION TO BE MODIFIED AS A PART OF THIS CONTRACT SHALL BE REBUILT AS REQUIRED TO THE SATISFACTION OF THE ENGINEER.
3. EXISTING CONSTRUCTION NOT UNDERGOING ALTERATION IS TO REMAIN UNDISTURBED. WHERE SUCH CONSTRUCTION IS DISTURBED AS A RESULT OF THE OPERATIONS OF THIS CONTRACT, IT SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AS REQUIRED AND TO THE SATISFACTION OF THE ENGINEER.
4. ALL WORK SHOWN ON THESE DRAWINGS MAY BE CHECKED BY AN INDEPENDENT TESTING AGENCY RETAINED BY OWNER TO ENSURE COMPLIANCE WITH THE REQUIREMENTS SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL PROVIDE ACCESS AS REQUIRED FOR TESTING PURPOSES.
5. THE GENERAL STRUCTURAL NOTES ARE INTENDED TO AUGMENT THE DRAWINGS AND SPECIFICATIONS. SHOULD CONFLICTS EXIST BETWEEN THE DRAWING, SPECIFICATION, AND/OR THE GENERAL STRUCTURAL NOTES, THE STRICTEST PROVISION SHALL GOVERN.

FOOTINGS & FOUNDATIONS

- 1. NO FOOTINGS OR SLABS SHALL BE PLACED ON OR AGAINST SUB-GRADE CONTAINING FREE WATER, FROST OR ICE. SHOULD WATER OR FROST, HOWEVER SLIGHT, ENTER A FOOTING EXCAVATION AFTER SUB-GRADE APPROVAL, THE SUB-GRADE SHALL BE RE-INSPECTED BY THE TESTING LABORATORY AFTER REMOVAL OF WATER OR FROST.
2. CONTRACTOR SHALL FURNISH ALL REQUIRED DEWATERING EQUIPMENT TO MAINTAIN A DRY EXCAVATION UNTIL BACKFILL IS COMPLETE.

BACKFILLING:

- 1. MATERIAL FOR BACKFILL OR ENGINEERED FILL REQUIRED TO ACHIEVE DESIGN GRADES SHOULD CONSIST OF NON-ORGANIC SOILS, THE ON-SITE SOILS THAT ARE FREE OF ORGANIC MATTER AND DEBRIS MAY BE USED FOR ENGINEERED FILL.
2. BACKFILL MATERIAL SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY, AS DETERMINED BY THE MODIFIED PROCTOR METHODS (ASTM D1557), IN LIFTS NOT EXCEEDING 12 INCHES IN LOOSE THICKNESS.
3. FROZEN MATERIAL SHOULD NOT BE USED AS FILL, NOR SHOULD FILL BE PLACED ON A FROZEN SUB-GRADE.

CAST-IN-PLACE CONCRETE:

- 1. ALL CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF ACI 301- LATEST REVISION, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDING", EXCEPT AS MODIFIED BY STRUCTURAL REQUIREMENTS NOTED ON THE DRAWINGS.
2. ALL CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH AS NOTED BELOW:
A. FOOTINGS & FOUNDATIONS: 3000 psi
B. SLAB ON GRADE: 4000 psi
C. SUPPORTED SLABS: 4000 psi
D. EXTERIOR CONCRETE: 4000 psi
E. GRADE WALLS: 4000 psi
3. ALL EXTERIOR CONCRETE INCLUDING WALLS SHALL BE AIR ENTRAINED 5% +/- 1%.
4. ALL REINFORCEMENT TO BE FABRICATED AND ERECTED ACCORDING TO THE ACI STANDARDS: "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT", ACI 315 - LATEST REVISION AND "MANUAL OF ENGINEERING AND PLACING DRAWINGS FOR REINFORCED CONCRETE STRUCTURES", ACI 315R - LATEST REVISION.
5. THE CONTRACTOR SHALL PREPARE AND SUBMIT REINFORCEMENT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW TO FABRICATION. THE SHOP DRAWINGS SHALL CLEARLY SHOW ALL REINFORCEMENT LENGTHS AND BENDS, LOCATIONS OF ALL BARS, VIBRATION AND CONSTRUCTION JOINTS. THE DRAWINGS SHALL ALSO INDICATE ALL OPENINGS, SLEEVES, CURBS AND CONCRETE DIMENSIONS IN ACCORDANCE WITH ACI 315.
6. LAPS, ANCHORAGES & SPLICES SHALL COMPLY WITH THE REQUIREMENTS OF ACI 318-LATEST REVISION, BUT IN NO CASE SHALL LAPS AND SPLICES BE LESS THAN 30 BAR DIAMETERS. LOCATIONS AND SPLICES SHALL BE IN ACCORDANCE WITH THE CONSTRUCTION JOINT LOCATIONS AND DETAILS AND AS SHOWN ON THE REINFORCING STEEL SHOP DRAWINGS.
7. ALL CONSTRUCTION JOINTS SHALL BE FURNISHED WITH KEYWAY CENTERED ON MEMBERS. WHERE THE SIZE OF KEY IS NOT SHOWN ON THE DRAWINGS, THE KEY DEPTH SHALL BE 10% OF THE CROSS SECTION DIMENSION OF THE MEMBER - MINIMUM 3/4".
8. PROVIDE 3/4" CHAMFER STRIP AT ALL EXPOSED CORNERS OF CONCRETE WALLS, INCLUDING EXPOSED CORNERS OF CONCRETE PIERS.
9. LOCATE ALL SLEEVES, OPENINGS AND EMBEDDED ITEMS, ETC., AS INDICATED ON THE DRAWINGS. THE CONCRETE CONTRACTOR SHALL CHECK WITH OTHER TRADES TO MAKE SURE THE SLEEVES, OPENINGS AND EMBEDDED ITEMS THAT ARE TO BE PROVIDED AND SET BY THEM ARE IN PLACE PRIOR TO PLACING OF CONCRETE IN THE AREA INVOLVED.
10. WELDING OF REINFORCING STEEL IS PROHIBITED UNLESS SPECIFICALLY DETAILED. WELDING SHALL CONFORM TO AWS D1.4 SPECIFICATION.
11. THE CONCRETE SHALL BE THOROUGHLY COMPACTED BY VIBRATION SUPPLEMENTED BY SPADING, PUDDLING OR AGITATION, TO PREVENT HONEYCOMBING AND TO INSURE THE ELIMINATION OF VOIDS. VIBRATION MUST BE DIRECT ACTION IN THE CONCRETE AND NOT AGAINST FORMS OR REINFORCEMENT. HONEYCOMBING, VOIDS, AND LARGE AIR POCKETS WILL NOT BE ACCEPTABLE.
12. LOCATION OF CONTRACTION JOINTS ARE SHOWN ON THE PLAN DRAWING. THE JOINTS SHOWN MAY SERVE AS CONSTRUCTION JOINTS IF CONVENIENT FOR THE CONSTRUCTION SEQUENCE. THE LOCATION OF ANY ADDITIONAL CONSTRUCTION JOINTS PROPOSED BY THE CONTRACTOR SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER. ALL CONCRETE SLABS & WALLS WITH CONSTRUCTION JOINTS SHALL BE PLACED PER ACI 302 1R.

SITE PREPARATION

- 1. AT THE START OF EARTHWORK OPERATIONS, ALL SURFACE VEGETATION SHOULD BE CLEARED AND THE EXISTING TOPSOIL AND ANY OTHER ORGANIC SOILS SHOULD BE REMOVED IN THEIR ENTIRETY FROM BELOW THE PROPOSED BUILDING AND PAVEMENT AREAS. EXISTING RANDOM CONCRETE SHALL BE REMOVED FROM WITHIN THE BUILDING AREA.
2. THE SUB-GRADE SHOULD BE THOROUGHLY PROOF-ROLLED WITH A HEAVY RUBBER-TIRED VEHICLE SUCH AS A LOADED SCRAPER OR LOADED DUMP TRUCK. ANY AREAS THAT EXHIBIT EXCESSIVE PUMPING AND YIELDING DURING PROOF-ROLLING SHOULD BE STABILIZED BY AERATION, DRYING AND COMPACTION IF WEATHER CONDITIONS ARE FAVORABLE, OR REMOVAL AND REPLACEMENT WITH ENGINEERED FILL.
3. ALL EXCAVATIONS ARE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE WHO SHALL BE CONSULTED WHEN POOR SOIL, WATER, OBSTRUCTIONS, PIPING, EXISTING FOOTINGS, EXCAVATIONS, ETC., ARE ENCOUNTERED.

REINFORCING STEEL

ASTM A-615 GRADE 60 (FY = 60 KSI) DEFORMED BARS. ASTM A-185 (FY = 75 KSI) FOR SMOOTH WELDED WIRE FABRIC. WELDED REBAR ASTM A-706, GRADE 60, AWS D1-4, CERTIFIED WELDERS, PROVIDE CLASS B LAP SPLICES. MINIMUM CONCRETE COVER SHALL BE:

Table with 2 columns: REINFORCING STEEL TYPE and COVER THICKNESS. Rows include CONCRETE CAST AGAINST EARTH (3"), FORMED SURFACE EXPOSED TO EARTH OR WEATHER (1 1/2"), and CONCRETE NOT EXPOSED TO WEATHER OR EARTH (3/4").

DRAWING INDEX table with columns: SHEET NUMBER, REV. NUMBER, SHEET TITLE. Rows include C-0 (GENERAL NOTES, KEY PLAN & DRAWING INDEX), C-1 (PLAN-STORAGE YARD), C-2 (SECTIONS & DETAILS), and FAB sheets.

Client: DeMaria Building Company

Project: TRANSTAR AUTOBODY TECHNOLOGIES, INC.

DRUM STORAGE YARD REPLACEMENT

Seal:

Date: 6-6-08 Issued For: BUILDING PERMITS

Drawn: C. PRICE, Checked: M. NEWKIRK, Approved:

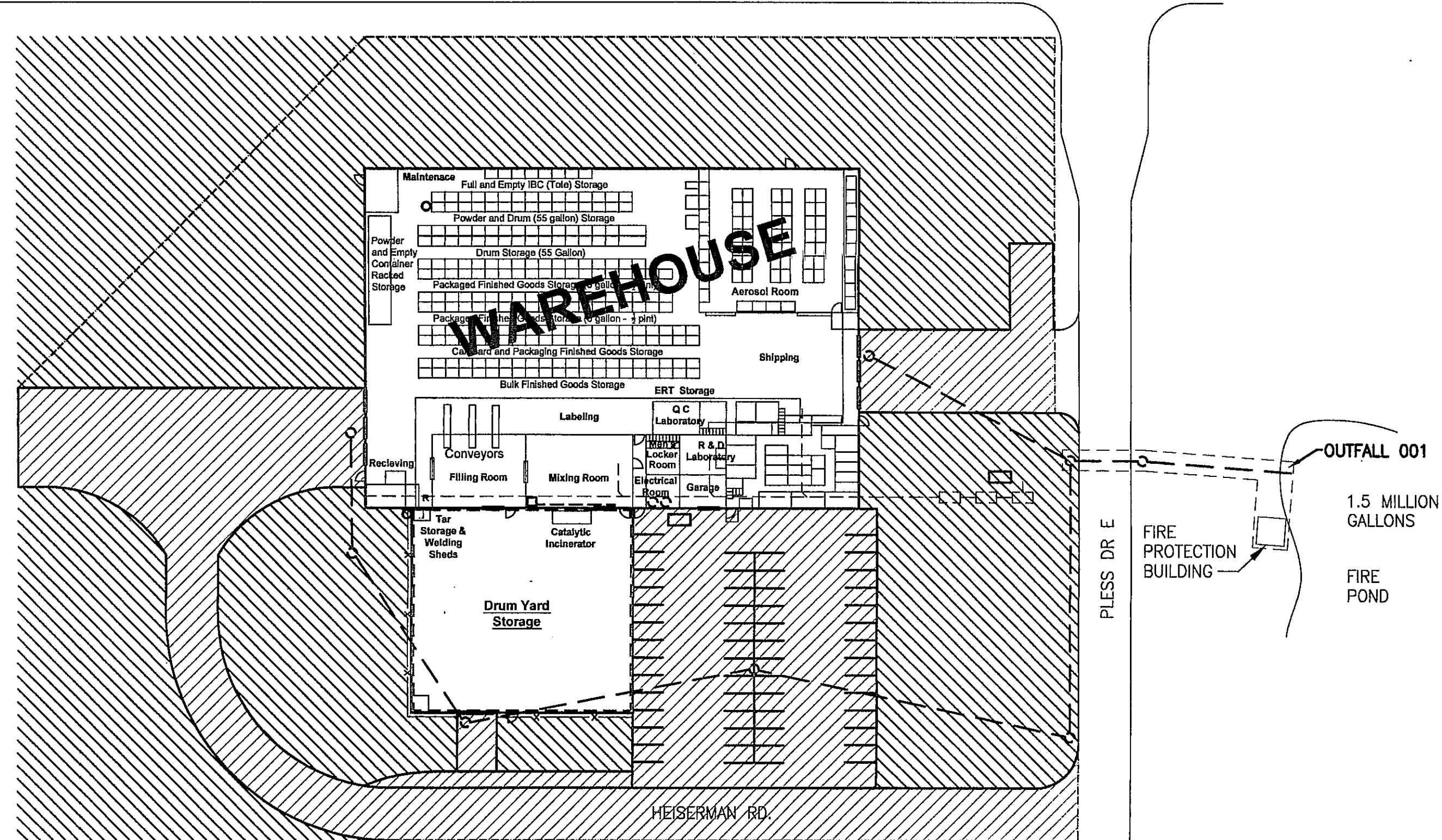
Sheet Title: GENERAL NOTES, KEYPLAN AND DRAWING INDEX

Project Number: 08209

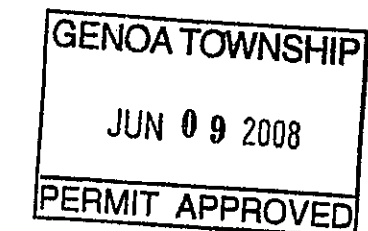
Sheet Number: C-0

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EULER RD



KEY PLAN SCALE: NTS





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Key Plan: NO SCALE

Client:
DeMaria Building
Company

Project:
TRANSTAR AUTOBODY
TECHNOLOGIES, INC.

DRUM STORAGE YARD
REPLACEMENT

Seal:

Date: 6-6-08 Issued For:
BUILDING PERMITS

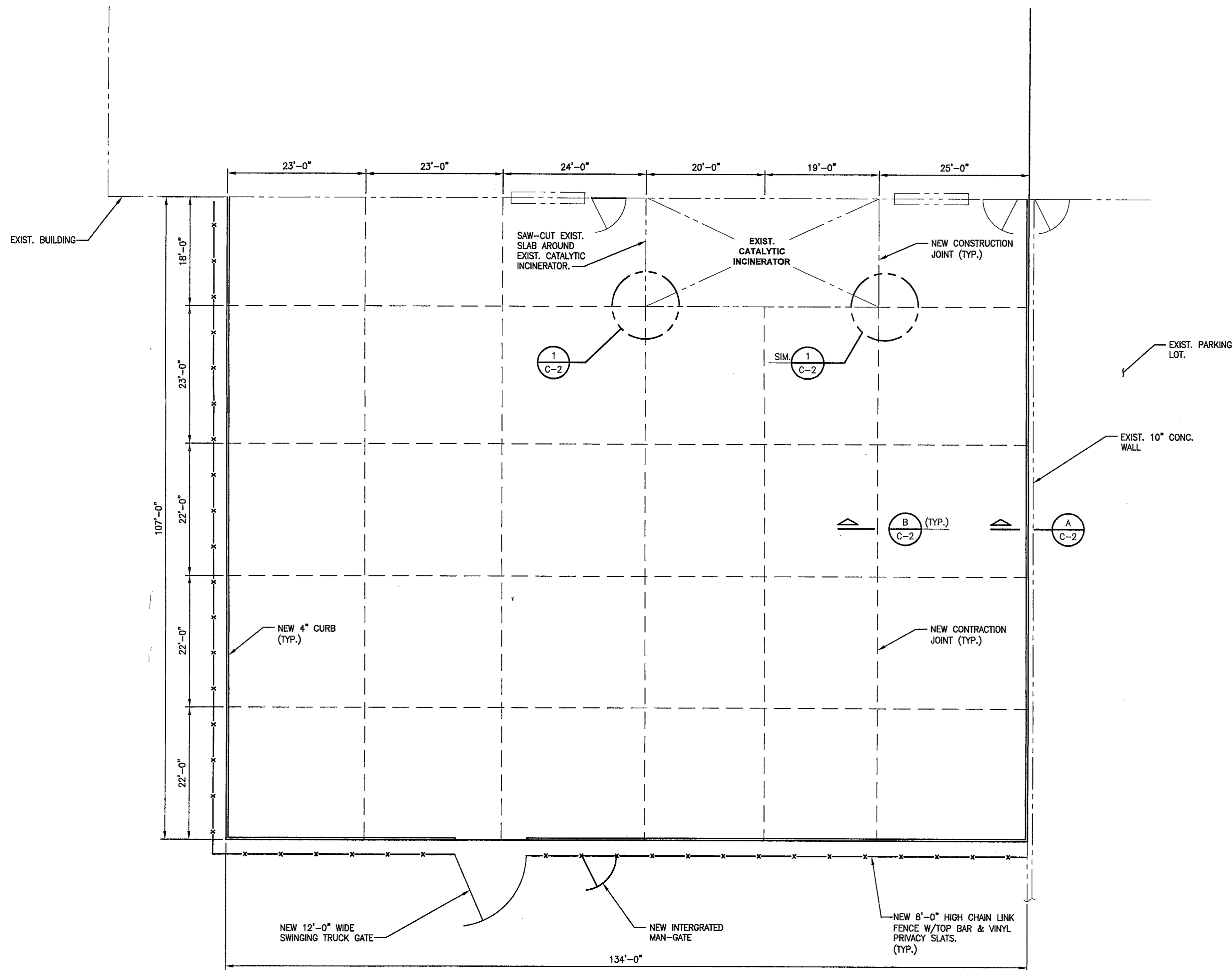
Drawn: C. PRICE
Checked: M. NEWKIRK
Approved:

Sheet Title:
PLAN -
STORAGE YARD

Project Number: 08209

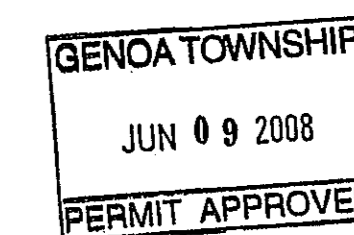
Sheet Number: C-1

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PLAN - DRUM STORAGE YARD

SCALE: 3/32"=1'-0"





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Key Plan: NO SCALE

Client:
DeMaria Building
Company

Project:
TRANSTAR AUTOBODY
TECHNOLOGIES, INC.

DRUM STORAGE YARD
REPLACEMENT

Seal:

Date Issued For
6-6-08 BUILDING PERMITS

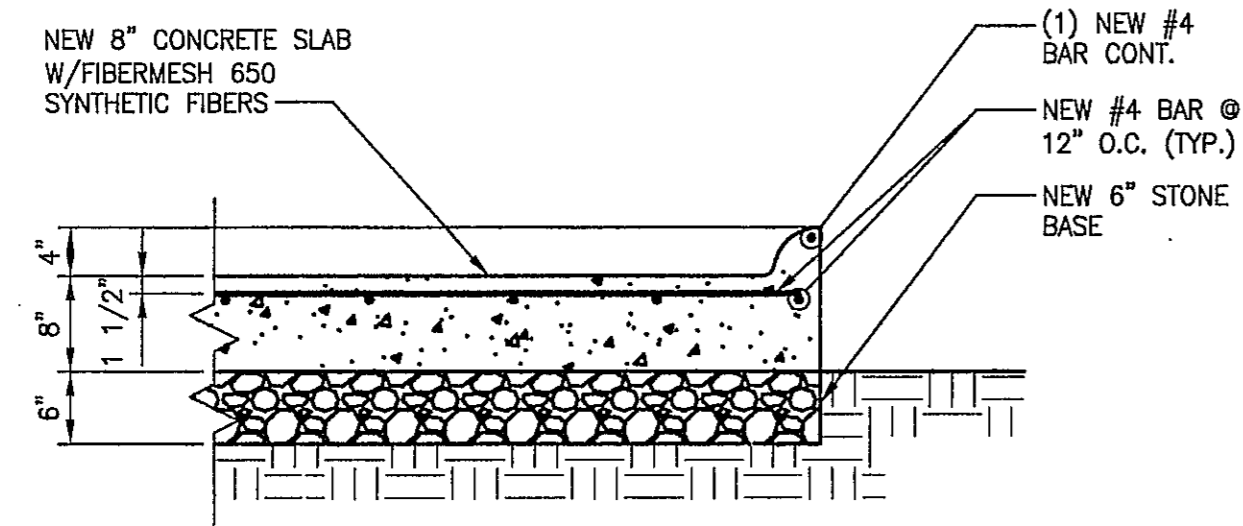
Drawn: C. PRICE
Checked: M. NEWKIRK
Approved:

Sheet Title:
SECTIONS &
DETAILS

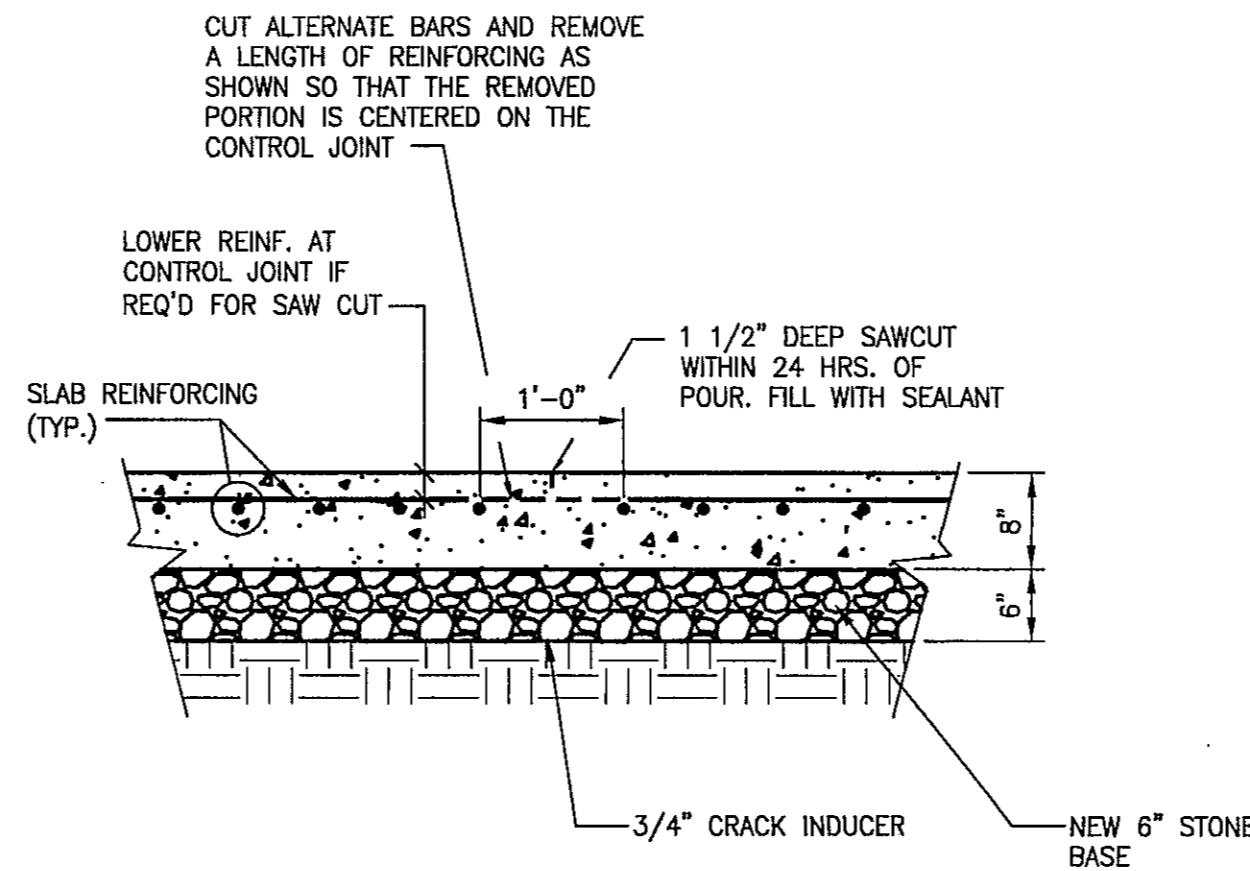
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Sheet Number: C-2

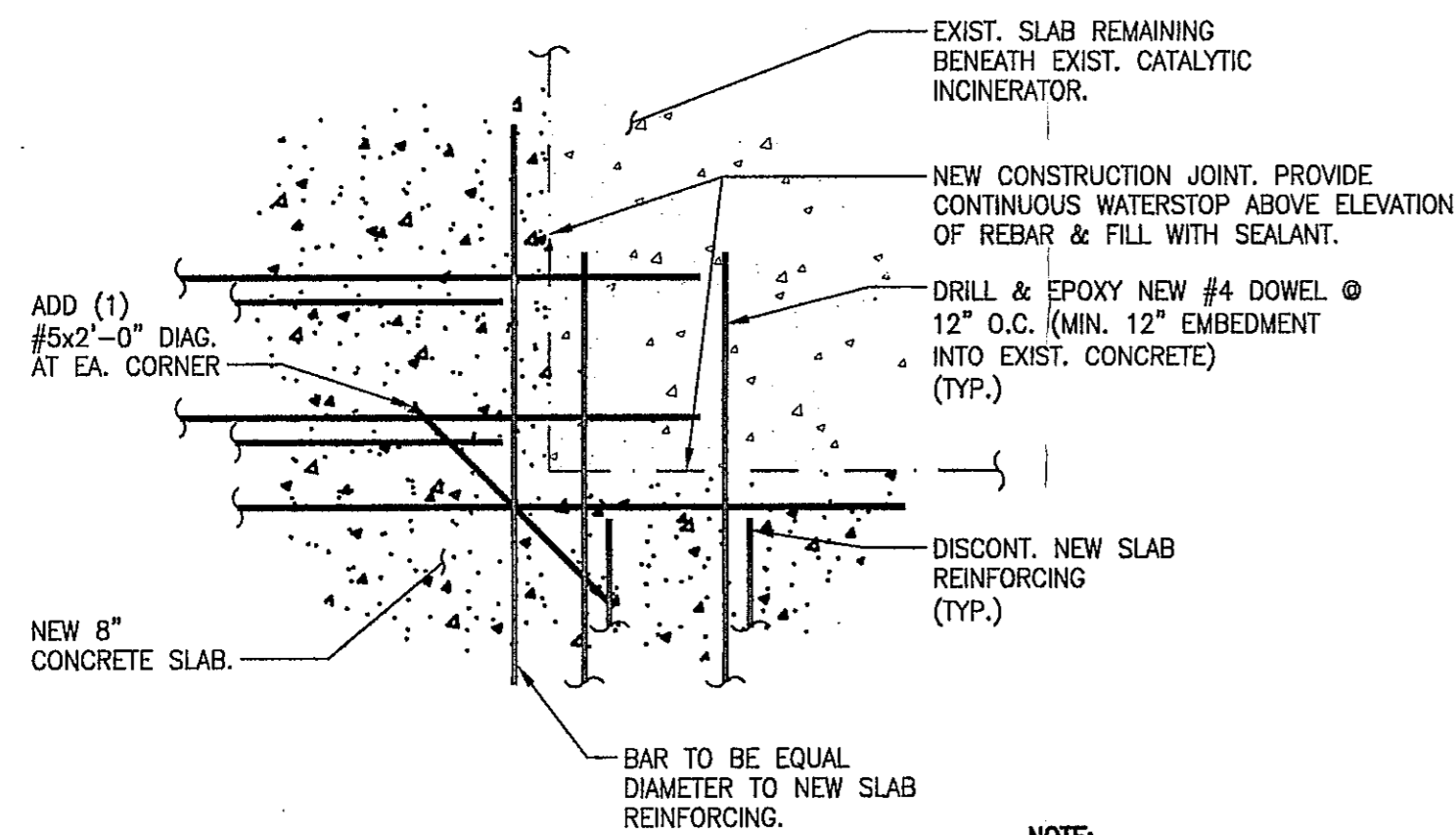
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SECTION
A
C-1
SCALE: 3/4"=1'-0"

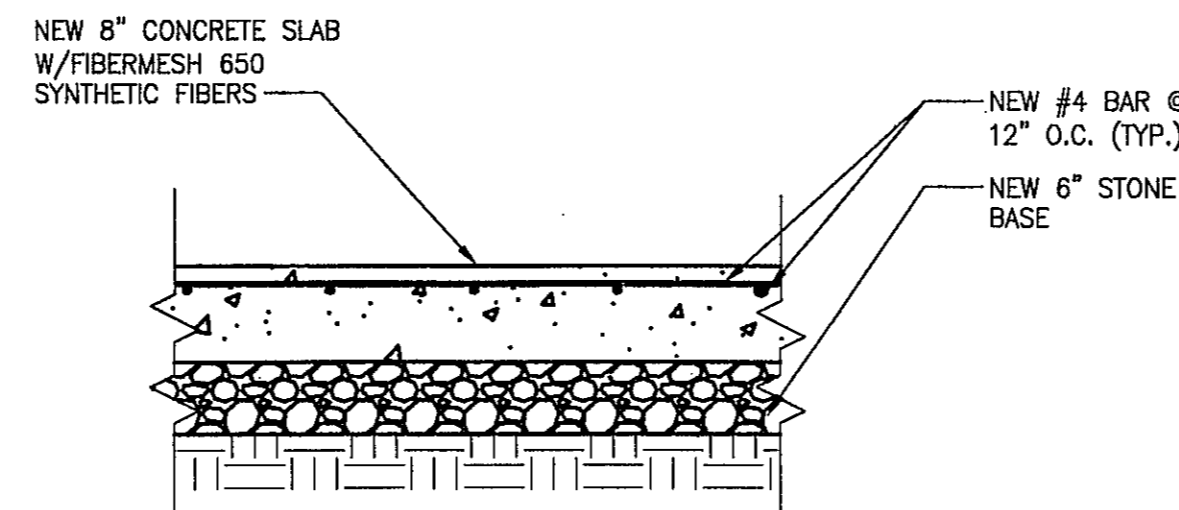


SECTION
B
C-1
SCALE: 3/4"=1'-0"

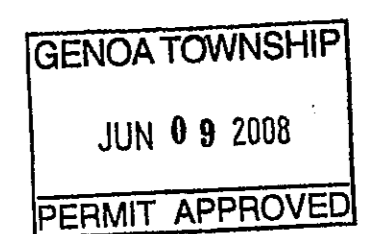


DETAIL
1
C-1
SCALE: 3/4"=1'-0"

NOTE:
BAR LAPS TO BE 30
TIMES BAR DIAMETER
U.N.O.



TYPICAL SECTION THRU SLAB & BASE
SCALE: 3/4"=1'-0"



**GENOA CHARTER TOWNSHIP
PLANNING COMMISSION
PUBLIC HEARING
AUGUST 13TH, 2012
6:30 P.M.**

AGENDA

CALL TO ORDER: The meeting of the Genoa Charter Township Planning Commission was called to order at 6:30 p.m. Present constituting a quorum were Diana Lowe, Dean Tenge, Chairman Douglas Brown, John McManus, and Lauren Brookins. Also present were Township Planner, Kelly VanMarter and Brian Borden of LSL. Also present was Gary Markstrom of Tetra Tech.

PLEDGE OF ALLEGIANCE: The Pledge of Allegiance was recited.

APPROVAL OF AGENDA: Motion by Diana Lowe to approve the agenda. Support by Chairman Brown. **Motion carried.**

CALL TO THE PUBLIC: *(Note: The Board reserves the right to not begin new business after 10:00 p.m.)*

Terry Croft, who resides on Hacker Road addressed the Planning Commission regarding the minutes for the June meeting. It was explained to him that the minutes would be approved this evening and published as soon as possible.

OPEN PUBLIC HEARING#1...Review of a special use application, impact assessment and site plan for proposed outdoor storage at the existing Industrial Resin Recycling Facility located at 1480 Grand Oaks, Howell, Sec. 8, petitioned by Industrial Resin Recycling Inc.

Planning Commission disposition of petition

- A. Recommendation of Special Use Application.
- B. Recommendation of Impact Assessment dated 3-28-12.
- C. Recommendation of Site Plan dated 7-12-12.

Bob Huston and Pat Keough appeared before the Planning Commission regarding the petition described above.

Brian Borden of LSL addressed the Planning Commission regarding this special use application. The three key items from June were addressed. The petitioner is cooperating with Mr. Borden's screening concerns. They have incorporated 7 additional canopy trees. He feels his concerns have been appropriately addressed.

The incorporation of a bio swail was addressed. From a zoning standpoint, this is an excellent idea in Brian Borden's opinion.

The fire department's concern regarding the new surface supporting the weight of the emergency vehicles. That documentation was to be provided by the application.

Brian Borden summarized his most recent memo. His findings are consistent with his opinions in June regarding land use.

From a site plan standpoint, Mr. Borden asks that the Planning Commission be specific in addressing the gravel surface as proposed. He suggests documenting that the landscaping requirements are being modified because it is protecting and preserving existing vegetation. One of the ordinance requirements is that outdoor storage cannot exceed screening that's provided. He believes this should be reiterated in the motion. The Planning Commission may require a financial guarantee by the petitioner. Any improvement of the dumpster area should be addressed in any motion.

Gary Markstrom of Tetra Tech addressed the Planning Commission. He was pleased that the petitioner submitted the information regarding the bio swail. The detention pond remains necessary because of the grading on the site. This needs to be clarified on the plans. No barrier between the truck parking and the storage area was proposed on the plans. Steel bollards embedded into the ground would be acceptable to Tetra Tech or even a pipe railing, but it must be more permanent and durable than wood. The gravel surface on the site really needs some maintenance. There is a lot of rutting in it running north/south. The northeast corner of the employee parking lot is gravel. That should be finished out with a hard surface due to the heavy use of it. The gravel lot in back of the building was addressed. He feels this should be a hard surface or maintenance free surface.

The Brighton Fire Department letter of August 9, 2012 was addressed.

The petitioner addressed the Planning Commission. Mr. Keough addressed the Planning Commission. The sediment pond is to remain. The pond should be reflected on sheet 3. Currently, it is denoted as being a part of a gravel area. The petitioner will address all requested changes in a revised set of drawings. He will use steel posts and chains for the bollard. They will be eight feet apart. The petitioner will add any necessary signs for the fire lane onto the plans.

The petitioners do take issue with any requirements to pave the parking lot. Additionally, the steel storage racks would melt into the asphalt on hot summer days. Mr. Houston indicated that not a lot of dust is created by the work at the petitioner's company. Chairman Brown asked about the silt that he has

witnessed in the area. The petitioner indicated that was caused by moving racks a few weeks prior. The petitioner is willing to top off the limestone with a new layer. They are willing to explore asphalt millings. The heaviest traffic area is the trailer storage area. The petitioner is agreeable to topping the trailer area and rack storage area with the asphalt millings. Mr. Markstrom requests dimensions of the outlying storage area off the building to the edge of the storage area.

The employee parking lot has not been paved yet. The petitioner requests to use asphalt millings in that area, as well. This is not ideal, per Mr. Markstrom, but would work.

Chairman Brown asked about the debris he saw on the site yesterday. The petitioner indicated they clean up the site a few times a week and will be sure that it is done.

Mr. Markstrom requested that the petitioner have all of sheets made compatible. There are some items that are not reflected on each sheet.

Ms. VanMarter's memorandum of August 13th was discussed. The petitioner indicated storage could be defined as the racks containing automobile parts. The height is eight feet until such time as the barrier is higher. There are two racks and each is four feet. The time frames were discussed.

Motion by Dean Tengel to recommend to the Township Board approval of the special use application, subject to:

1. Outdoor storage shall be limited to eight feet in height, but not higher than the screening;
2. Limited to storing auto parts and propane;
3. The storage area will be separated from the semi trailer area by steel posts imbedding in concrete with chains between them at a distance of eight feet apart;
4. Non-typical refuse bins will be permitted, as are currently being used;
5. The bio swail will be added as a physical barrier to separate the outdoor storage; and
6. The surface of the outdoor storage area will be eight inches of asphalt millings as well as the employee parking lot located on the north side of the building.

Support by Diana Lowe. **Motion carried unanimously.**

Motion by Dean Tengel to recommend to the Township Board that the impact assessment be approved as presented. Support by John McManus. **Motion carried unanimously.**

Motion by John McManus recommend to the Township Board that the site plan dated August 3, 2012, subject to:

1. Addition of fire lane signs to the plan;
2. Addition of seven tree plantings;
3. And to add to the site plan the depth and type of surfacing; and
4. All site improvements except landscaping shall be done by November 15, 2012;
5. Plantings to be done in accordance with the landscape plan and to be completed by June 15, 2013;
6. The landscape requirements are being deviated from due to the efforts to preserve the existing vegetation;
7. No bond shall be required; and
8. The dimensions from the building to the allowable storage area are to be put on the site plans.

Support by Diana Lowe. **Motion carried unanimously.**

Administrative Business:

- *Staff report*
- *Approval of June 11, 2012 Planning Commission meeting minutes. **Motion** by John McManus to approve the minutes. Support by Lauren Brookins. **Motion carried unanimously.***
- *Member Discussion*

Adjournment. **Motion** by John McManus to adjourn the meeting. Support by Lauren Brookins . **Motion carried unanimously.** Meeting adjourned at 7:45 p.m.