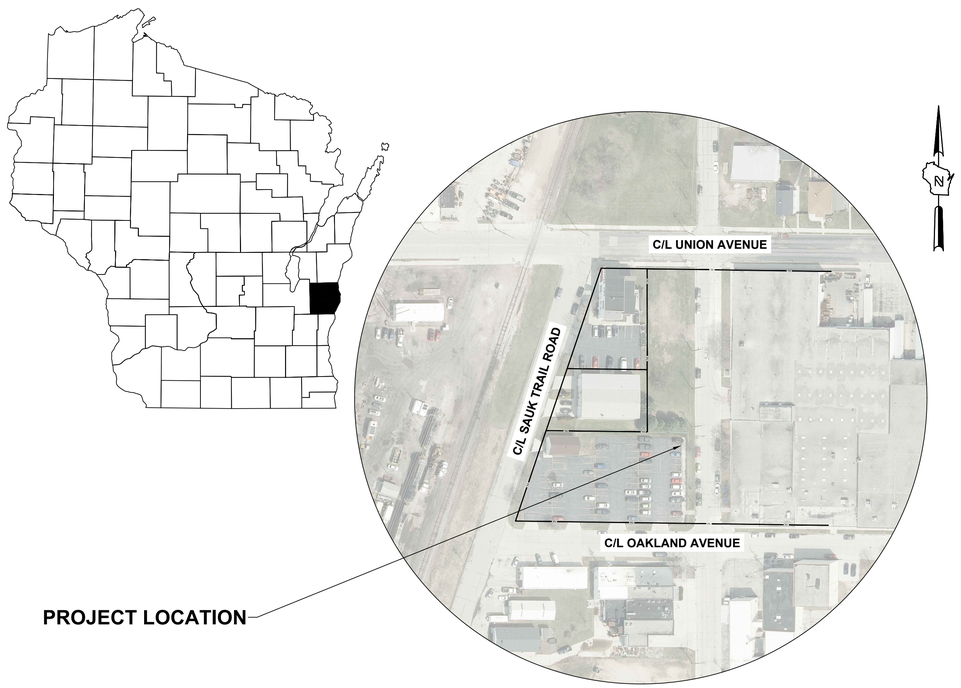
HTT WEST EXPANSION

1828 OAKLAND AVE, SHEBOYGAN, WI 53081

CIVIL ENGINEERING DRAFT PLANS

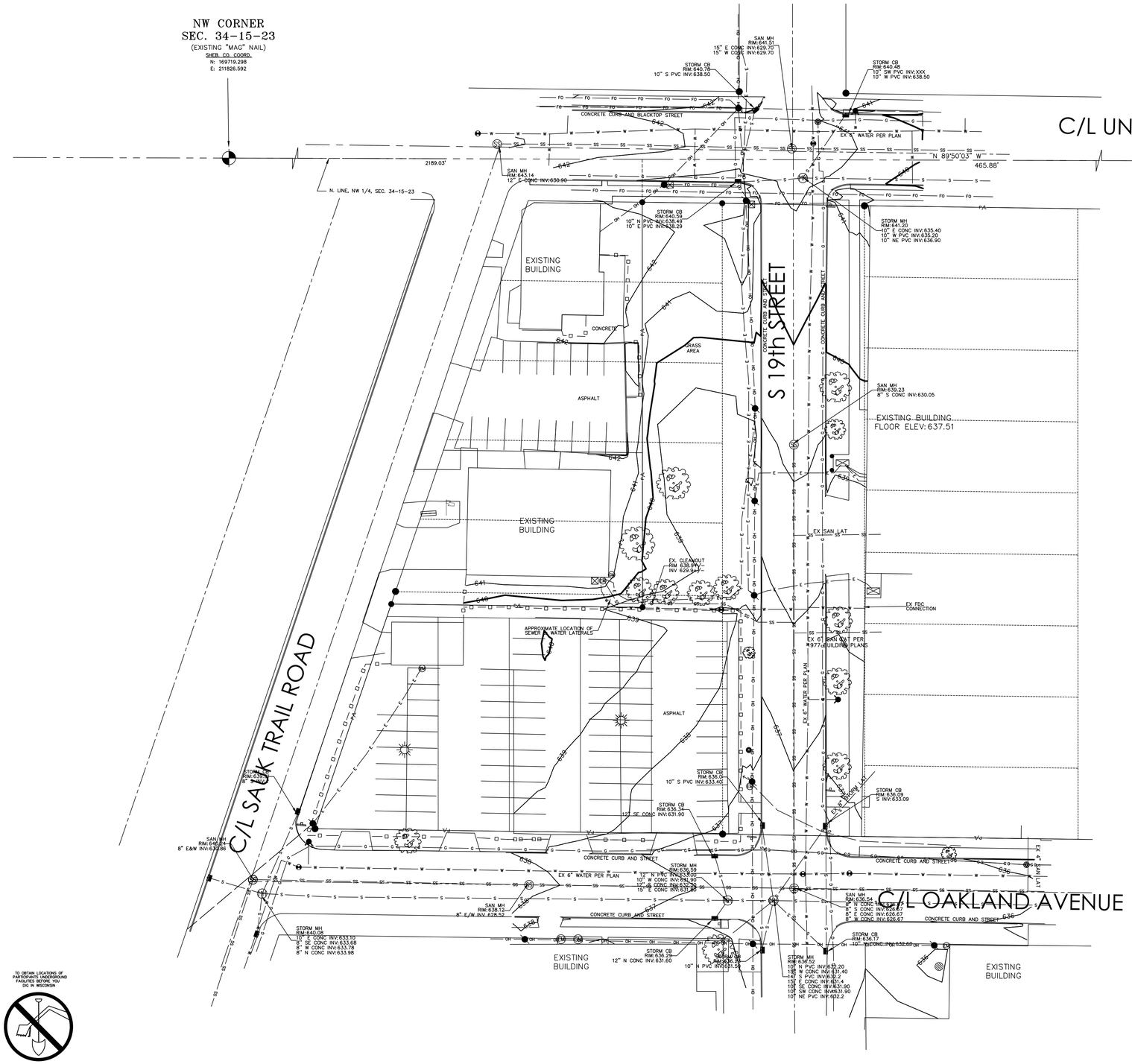
SITE LOCATION MAP:

NOT TO SCALE



SHEET INDEX	
SHEET NO.	**DESCRIPTION**
C001	SITE SURVEY
C002	SITE PREPARATION & EROSION CONTROL PLAN
C100	SITE PLAN
C200	GRADING PLAN
C300	UTILITY PLAN
C301	SANITARY PLAN PROFILE
C302	WATER MAIN PLAN PROFILE
C400	EROSION CONTROL DETAILS
C401	DETAILS
C402	DETAILS
C500	SPECIFICATIONS
C501	CITY SPECIFICATIONS

FEBRUARY 27, 2024



LEGEND:

- = 3/4"x 18" IRON REBAR SET WEIGHING 1.13 LBS/FT
- = COMBINED LOTS
- = EXISTING HYDRANT
- = EXISTING STORM INLET
- = EXISTING TRANSFORMER
- EM = EXISTING ELECTRIC METER
- = EXISTING LIGHT POLE
- GM = EXISTING GAS METER
- = EXISTING POWER POLE W/GUY WIRE
- = EXISTING TELEPHONE PEDESTAL
- = EXISTING GAS VALVE
- = EXISTING BOLLARD
- = EXISTING TRAFFIC SIGN
- = EXISTING TREE
- = WATER VALVE
- = EXISTING CLEAN OUT
- (000) = "RECORDED AS" DIMENSIONS
- MH = EXISTING SANITARY MANHOLE
- SS = EXISTING STORM MANHOLE
- = EXISTING 3/4" IRON ROD
- = EXISTING 3/4" IRON PIPE
- = EXISTING 1/4" IRON ROD
- SS = EXISTING SANITARY SEWER
- FO = EXISTING FIBER OPTIC
- S = EXISTING STORM SEWER
- W = EXISTING WATER
- E = EXISTING ELECTRICAL
- G = EXISTING GAS
- = EXISTING FENCE
- OH = OVERHEAD POWER LINE

GENERAL NOTES:

1. THE UNDERGROUND UTILITY INFORMATION SHOWN ON THIS DRAWING IS BASED ON FIELD LOCATIONS AND/OR RECORDS FURNISHED BY MUNICIPALITIES AND UTILITY COMPANIES. THE LOCATION AND ACCURACY OF WHICH CANNOT BE GUARANTEED. THERE MAY BE ADDITIONAL UNDERGROUND UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

2. VERIFY ACTUAL LOCATIONS AND INVERTS IN THE FIELD. ANY POTENTIAL ERRORS, OMISSIONS, OR DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

3. DRAWING IS BASED ON FIELD SURVEY COMPLETED BY CORNER POINT ON JANUARY 23, 2024.

4. DATUM FOR THE PROJECT SURVEY IS NAVD83. BENCHMARKS FOR THE PROJECT SURVEY IS TOP NUT OF HYDRANT ON NE CORNER OF OAKLAND AVE AND SAUK TRAIL RD, ELEV 642.78, THE TOP NUT OF HYDRANT EAST SIDE OF S. 19TH ST NORTH OF OAKLAND AVE, ELEV 640.92, AND THE FLOOR OF EXISTING BUILDING ON THE EAST SIDE OF S 19TH ST, ELEV 637.51.

5. CONTRACTOR TO VERIFY EXISTING CONDITIONS, CONTACT ENGINEER WITH DISCREPANCIES.

TO OBTAIN LOCATIONS OF PARTICIPATING UTILITIES AND FACILITIES BEFORE YOU DIG IN WISCONSIN

CALL DIGGERS HOTLINE
1-800-242-8511
TOLL FREE

WIS STATUTE 182.0175(1974) REQUIRES MIN. 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE

MILW. AREA 259-1181

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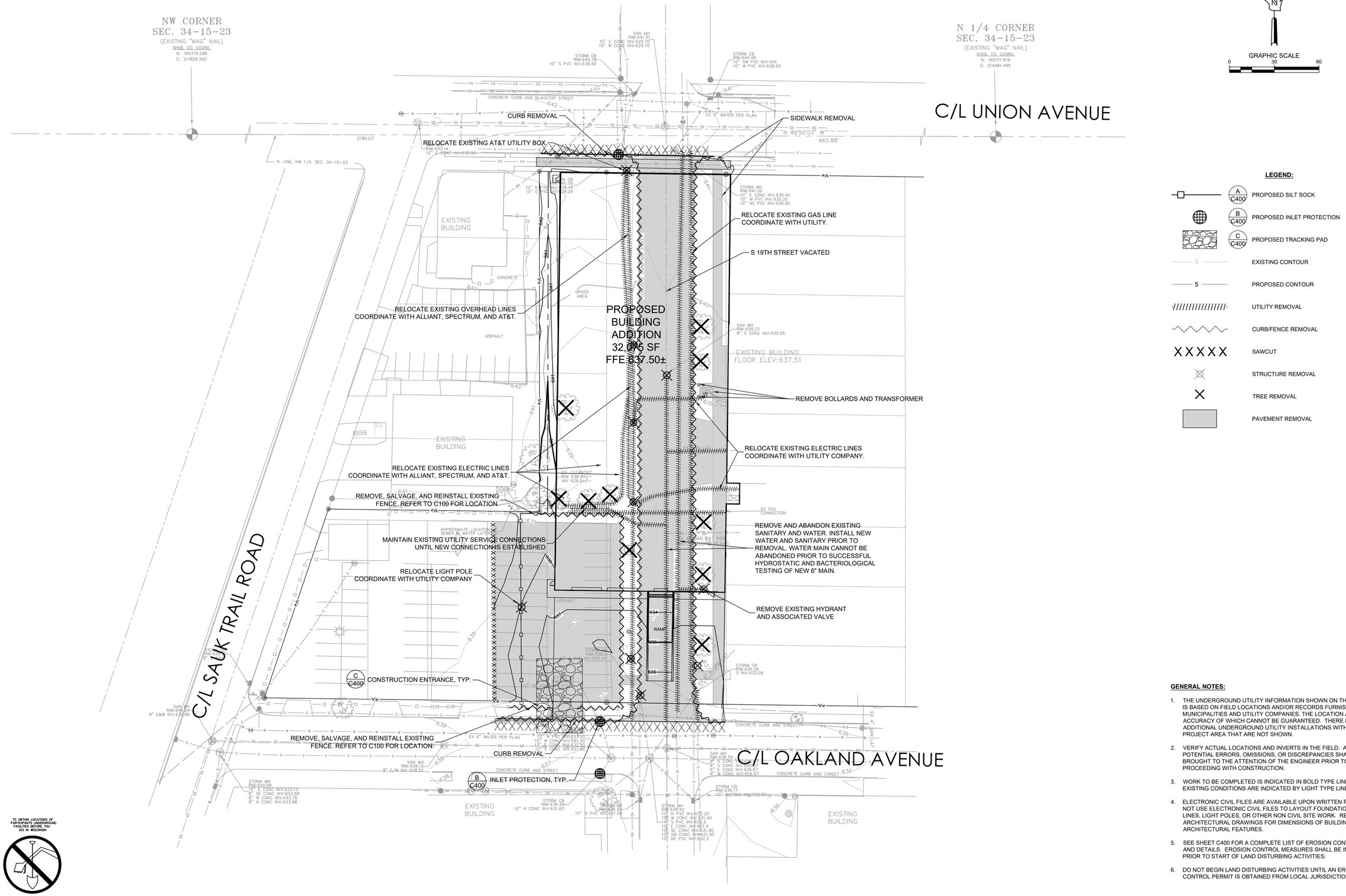
SITE SURVEY

REVISION DESCRIPTION	DATE	REV. BY

A.C.E. BUILDING SERVICE
OUR REPUTATION IS OUR FOUNDATION
P.O. BOX 1626 • 3510 SOUTH 26TH STREET • MANITOWOC, WISCONSIN • 54221-1626
PHONE: 920-682-0105 • FAX: 920-682-7700 • WWW.ACEBUILDINGSERVICE.COM

PROJECT INFORMATION:
HTT WEST EXPANSION
1828 OAKLAND AVENUE
SHEBOYGAN, WI 53081

SHEET INFORMATION
A.C.E. JOB NO.
DATE: 12/08/2023
DRAWN BY: AKK
SCALE: 1''=30'
SHEET
C001



LEGEND:

- A C400 — PROPOSED SILT SOCK
- B C400 — PROPOSED INLET PROTECTION
- C C400 — PROPOSED TRACKING PAD
- 5 — EXISTING CONTOUR
- 5 — PROPOSED CONTOUR
- UTILITY REMOVAL
- CURB/FENCE REMOVAL
- XXXXX — SAWCUT
- STRUCTURE REMOVAL
- TREE REMOVAL
- PAVEMENT REMOVAL

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3. WORK TO BE COMPLETED IS INDICATED IN BOLD TYPE LINES AND EXISTING CONDITIONS ARE INDICATED BY LIGHT TYPE LINES.
4. ELECTRONIC CIVIL FILES ARE AVAILABLE UPON WRITTEN REQUEST. DO NOT USE ELECTRONIC CIVIL FILES TO LAYOUT FOUNDATIONS, COLUMN LINES, LIGHT POLES, OR OTHER NON CIVIL SITE WORK. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS OF BUILDING AND ARCHITECTURAL FEATURES.
5. SEE SHEET C400 FOR A COMPLETE LIST OF EROSION CONTROL NOTES AND DETAILS. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO START OF LAND DISTURBING ACTIVITIES.
6. DO NOT BEGIN LAND DISTURBING ACTIVITIES UNTIL AN EROSION CONTROL PERMIT IS OBTAINED FROM LOCAL JURISDICTION.

SITE DEMOLITION AND EROSION CONTROL PLAN

TO OBTAIN LOCATIONS OF PARTICIPANTS UNDERGROUND FACILITIES BEFORE YOU DIG IN WISCONSIN

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SHEET INFORMATION
A.C.E. JOB NO.
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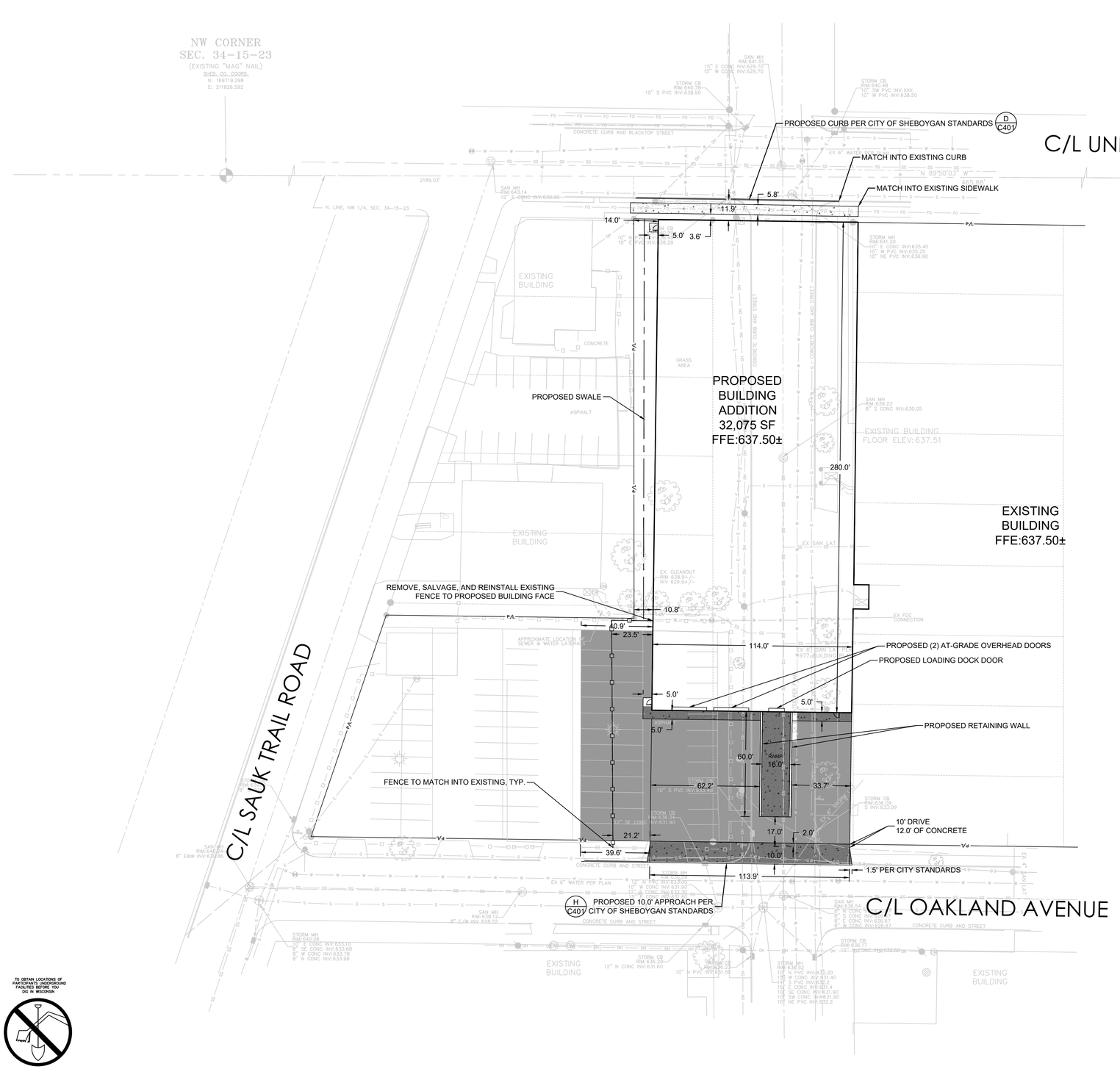
SCALE: 1''=30'
SHEET C002



SITE INFORMATION			
SITE AREA	65,523 SF	1.504 AC	
SITE DISTURBED AREA	52,150 SF	1.197 AC	79.6 %
EXISTING IMPERVIOUS AREA	42,141 SF	0.967 AC	64.3 %
PROPOSED IMPERVIOUS AREA	45,572 SF	1.046 AC	69.6 %
EXISTING PAVEMENT AREA	42,141 SF	0.967 AC	64.3 %
PROPOSED PAVEMENT AREA	13,497 SF	0.310 AC	20.6 %

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3. WORK TO BE COMPLETED IS INDICATED IN BOLD TYPE LINES AND EXISTING CONDITIONS ARE INDICATED BY LIGHT TYPE LINES.
4. ELECTRONIC CIVIL FILES ARE AVAILABLE UPON WRITTEN REQUEST. DO NOT USE ELECTRONIC CIVIL FILES TO LAYOUT FOUNDATIONS, COLUMN LINES, LIGHT POLES, OR OTHER NON CIVIL SITE WORK. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS OF BUILDING AND ARCHITECTURAL FEATURES.
5. DIMENSIONS ARE FROM FACE OF CURB OR EDGE OF PAVEMENT.
6. WORK WITHIN THE PUBLIC RIGHT OF WAY, INCLUDING BUT NOT LIMITED TO DRIVEWAY OPENINGS, SIDEWALK AND RAMPS, PAVING, AND CURB AND GUTTER SHALL BE COMPLETED PER MUNICIPAL AND/OR COUNTY REQUIREMENTS AND STANDARDS.
7. EARTHWORK SHALL BE IN ACCORDANCE WITH GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.

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SITE PLAN

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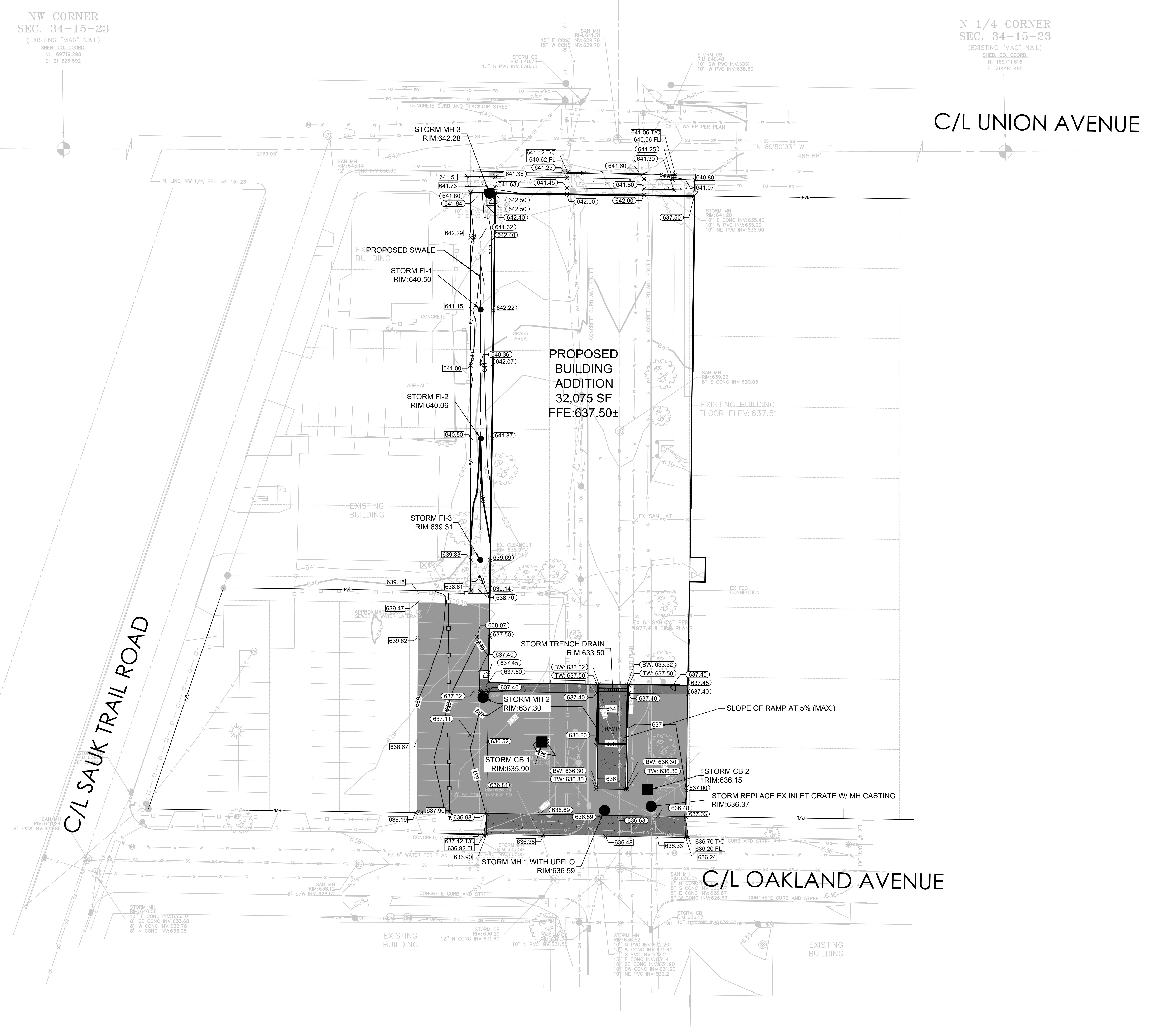

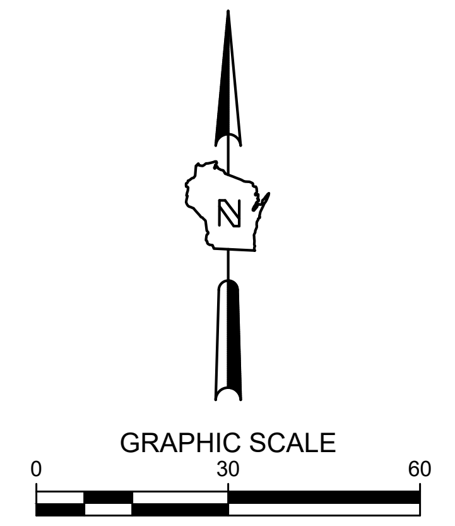

LEGEND:

▨	A / C401	5" THICK CONCRETE WALK
▨	B / C401	CONCRETE PAVEMENT
▨	C / C401	HEAVY-DUTY ASPHALT SURFACE
— · —		PROPOSED SWALE
—□—□—		PROPOSED FENCELINE
— 5 —		EXISTING CONTOUR
— 5 —		PROPOSED CONTOUR
✕ 100.00		PROPOSED SURFACE SPOT GRADE
✕ 100.00		EXISTING SURFACE SPOT GRADE (MATCH)
✕ TW: 100.00		PROPOSED TOP OF WALL AT FINISHED GRADE
✕ BW: 100.00		PROPOSED BOTTOM OF WALL AT FINISHED GRADE
■	E / C401	PROPOSED STORM INLET
●	F / C401	PROPOSED STORM MANHOLE
●	D / C402	PROPOSED STORM NYOPLAST DRAIN BASIN

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5. ALL UTILITIES WITHIN 5 FEET OF PAVED AREAS SHALL REQUIRE GRANULAR BACKFILL. SLURRY BACKFILL IS REQUIRED FOR ALL WORK IN PUBLIC RIGHT OF WAY.
6. PRIVATE STORM INLETS IN PAVEMENT SHALL REQUIRE DRAIN TILE STUBS OF 10 FEET IN TWO DIRECTIONS FOR SUBDRAINAGE. RIM GRADE FOR STORM INLETS IN CURB AND GUTTER ARE FLOW LINE GRADES.
7. WORK IN PUBLIC RIGHT OF WAY SHALL FOLLOW MATERIAL AND INSTALLATION REQUIREMENTS PER MUNICIPAL AND/OR COUNTY.
8. PRIVATE STORM SEWER 12-INCH DIAMETER OR LARGER SHALL BE HDPE. BELOW 12-INCH DIAMETER SHALL BE PVC SDR-35 ASTM D3034. PRIVATE WATER MAIN SHALL BE CLASS 235 DR 18 PVC CONFORMING TO AWWA C-900. PRIVATE SANITARY SEWER SHALL BE PVC SDR-35 ASTM D3034.
9. COORDINATE FINAL LOCATION AND DESIGN OF PRIVATE UTILITY SERVICES (ELECTRIC, GAS, PHONE, CABLE) WITH UTILITY COMPANIES.
10. IF PROJECT IS DESIGN BUILD MEP, THE GENERAL CONTRACTOR IS REQUIRED TO PROVIDE FINAL SEWER AND WATER DESIGN SHOWING LOCATION, INVERTS AND SIZES TO THE ENGINEER FOR FINAL REVIEW AND VERIFICATION PRIOR TO STARTING UNDERGROUND UTILITY CONSTRUCTION.
11. WATER MAIN CONNECTION: TAP WATER MAIN WITH SIZE AND LOCATION INDICATED ON PLAN IN ACCORDANCE WITH LOCAL WATER UTILITY REQUIREMENTS. COORDINATE CONNECTION WITH LOCAL WATER UTILITY. ALL JOINTS HALL BE RESTRAINED FROM CONNECTION OF WATER MAIN TO BUILDING WALL. SUBMIT JOINT RESTRAINT DETAILS FOR ALL JOINT TYPES INCLUDING PUSH-ON AND MECHANICAL CONNECTIONS. INSTALL MEGA-LUG OR APPROVED EQUAL TIGHT TO WALL FOR RESTRAINT FOR ALL BUILDING WALL PENETRATIONS AS APPROVED BY LOCAL PLUMBING INSPECTOR AND WATER UTILITY. INSTALL THRUST BLOCKING AND MEGA-LUG AT BEND BELOW FLOOR FOR ALL FLOOR PENETRATIONS.
12. INSTALL JOINT RESTRAINT AND CONCRETE THRUST BLOCKS AT ALL OFFSET FITTINGS (TEES, BENDS, DEAD ENDS, VALVES, REDUCERS) USING MEGA-LUG OR APPROVED EQUAL. CONCRETE THRUST BLOCKS SHALL BE INSTALLED PER FILE NO'S:44,45,46 FROM THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN. SEE DETAIL FOR MINIMUM LENGTH OF RESTRAINED JOINT REQUIRED. SUBMIT JOINT RESTRAINT DETAILS FOR ALL JOINT TYPES INCLUDING PUSH-ON AND MECHANICAL CONNECTIONS.
13. SERVICE LATTERAL CANNOT BE RECONNECTED UNTIL HYDROSTATIC AND BACTERIOLOGICAL TESTING RESULTS ARE OBTAINED.

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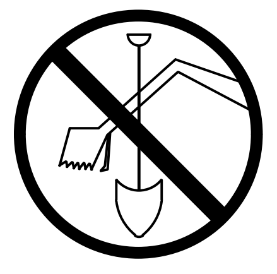

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MILW. AREA 259-1181

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GRADING PLAN

REV.	DATE	REVISION DESCRIPTION	BY

A.C.E. BUILDING SERVICE
OUR REPUTATION IS OUR FOUNDATION
P.O. BOX 1626 • 3510 SOUTH 26TH STREET • MANITOWOC, WISCONSIN • 54221-1626
PHONE: 920-682-6105 • FAX: 920-682-7700 • WWW.ACEBUILDINGSERVICE.COM

PROJECT INFORMATION:

HTT WEST EXPANSION

1828 OAKLAND AVENUE
SHEBOYGAN, WI 53081

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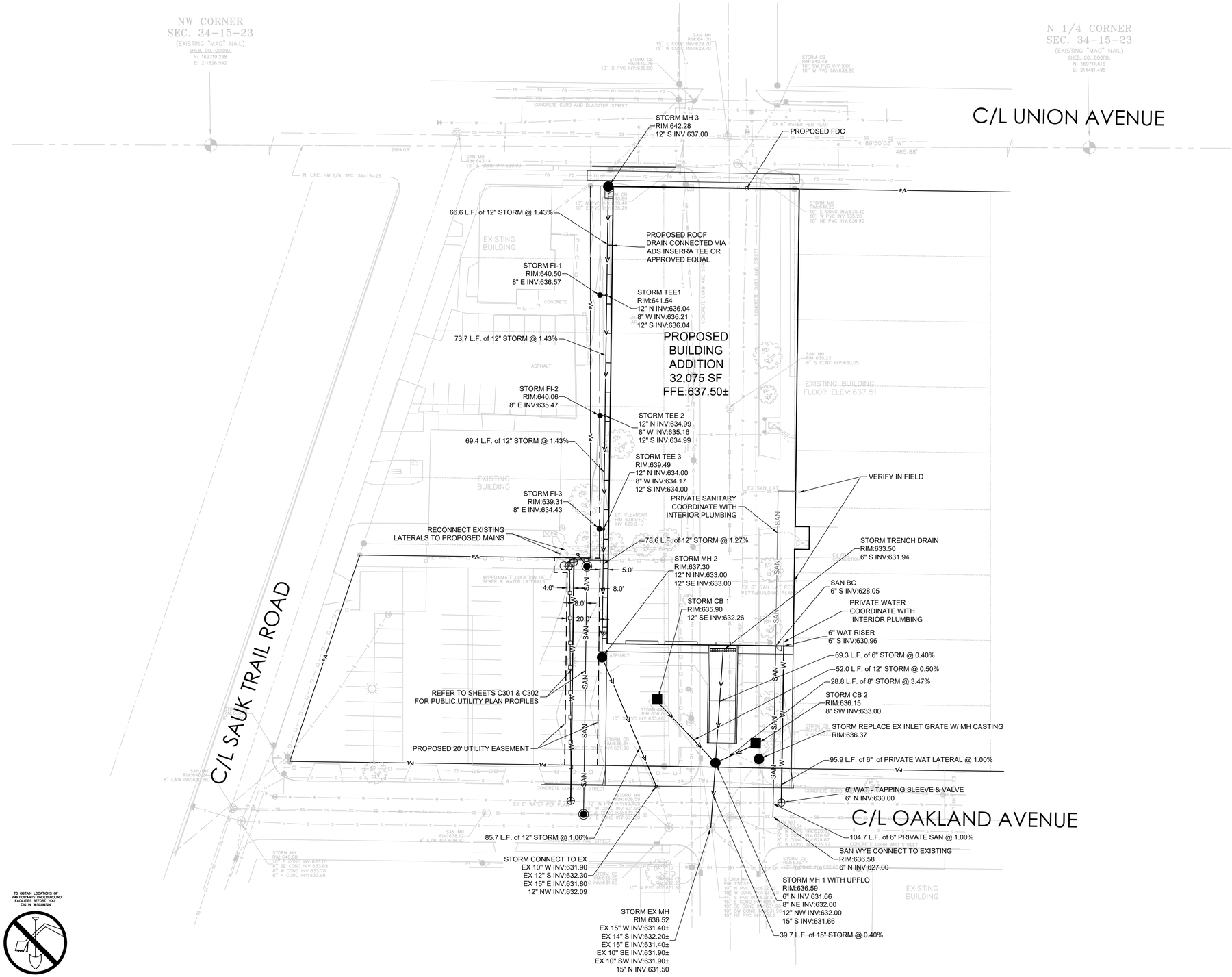
A.C.E. JOB NO.
DATE: 12/08/2023
DRAWN BY: AKK
SCALE: 1''=30'

SHEET
C200



GRAPHIC SCALE
0 30 60

LEGEND:

- W — PROPOSED WATER SERVICE
- SAN — PROPOSED SANITARY SERVICE
- → — PROPOSED STORM SEWER
- E C401 — PROPOSED STORM INLET
- F C401 — PROPOSED STORM MANHOLE
- D C402 — PROPOSED STORM NYOPLAST DRAIN BASIN
- G C401 — PROPOSED SANITARY MANHOLE
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UTILITY PLAN

REVISION DESCRIPTION	DATE	REV. BY

A.C.E. BUILDING SERVICE
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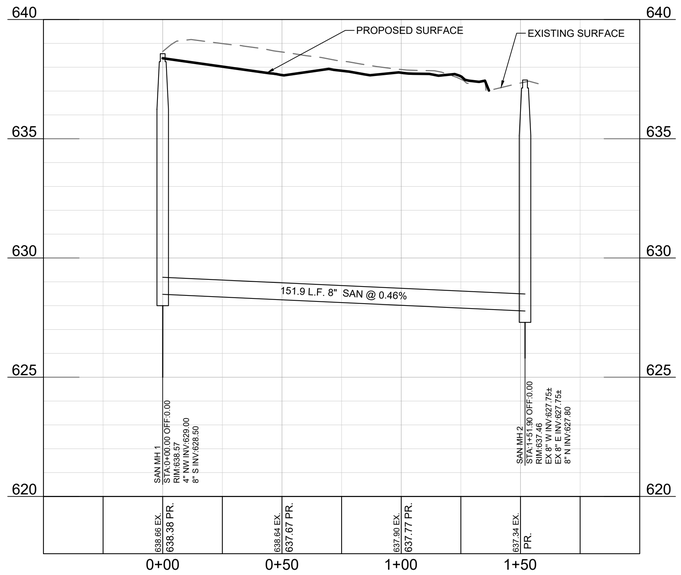

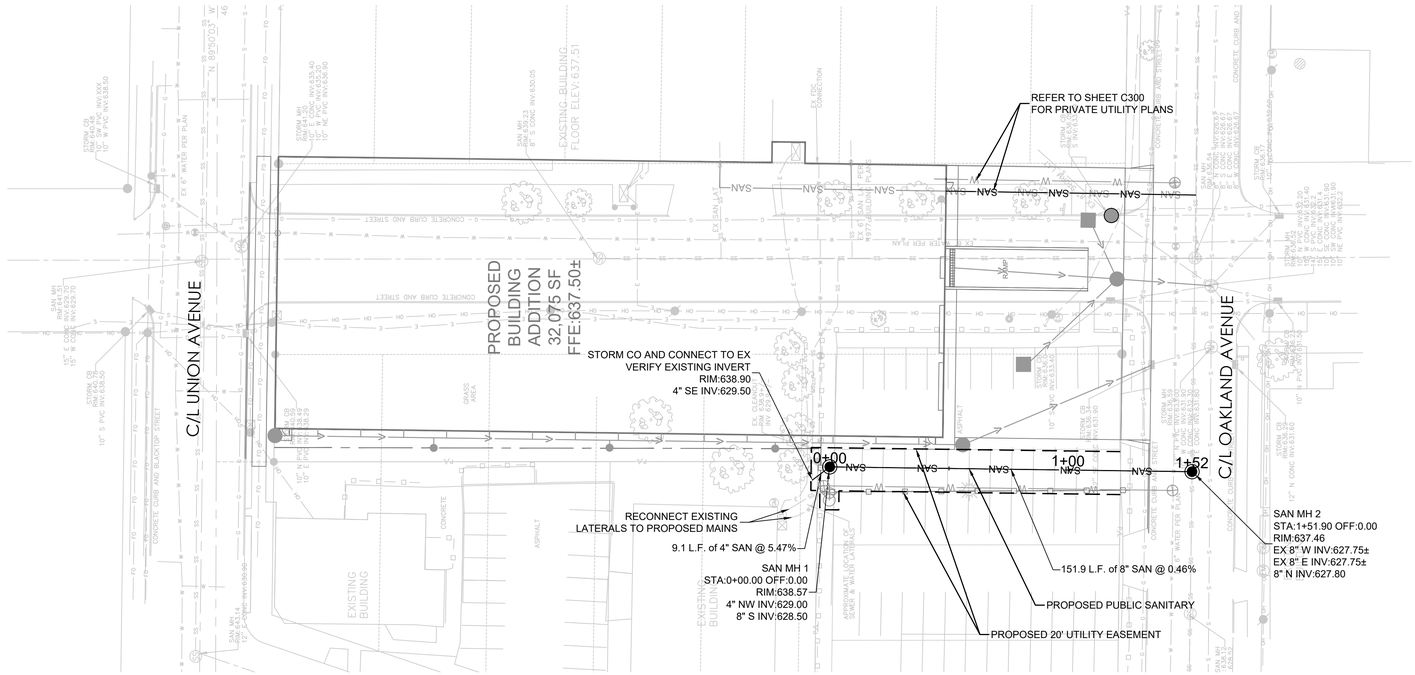

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GRAPHIC SCALE
0 30 60

LEGEND:

- W — PROPOSED WATER SERVICE
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- SAN — PROPOSED SANITARY SERVICE
- PROPOSED STORM SEWER
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- G C401 — PROPOSED SANITARY MANHOLE
- A C402 — PROPOSED HYDRANT ASSEMBLY

GENERAL NOTES:

1. THE UNDERGROUND UTILITY INFORMATION SHOWN ON THIS DRAWING IS BASED ON FIELD LOCATIONS AND/OR RECORDS FURNISHED BY MUNICIPALITIES AND UTILITY COMPANIES. THE LOCATION AND ACCURACY OF WHICH CANNOT BE GUARANTEED. THERE MAY BE ADDITIONAL UNDERGROUND UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.
2. VERIFY ACTUAL LOCATIONS AND INVERTS IN THE FIELD. ANY POTENTIAL ERRORS, OMISSIONS, OR DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
3. WORK TO BE COMPLETED IS INDICATED IN BOLD TYPE LINES AND EXISTING CONDITIONS ARE INDICATED BY LIGHT TYPE LINES.
4. ELECTRONIC CIVIL FILES ARE AVAILABLE UPON WRITTEN REQUEST. DO NOT USE ELECTRONIC CIVIL FILES TO LAYOUT FOUNDATIONS, COLUMN LINES, LIGHT POLES, OR OTHER NON CIVIL SITE WORK. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS OF BUILDING AND ARCHITECTURAL FEATURES.
5. ALL UTILITIES WITHIN 5 FEET OF PAVED AREAS SHALL REQUIRE GRANULAR BACKFILL. SLURRY BACKFILL IS REQUIRED FOR ALL WORK IN PUBLIC RIGHT OF WAY.
6. PRIVATE STORM INLETS IN PAVEMENT SHALL REQUIRE DRAIN TILE STUBS OF 10 FEET IN TWO DIRECTIONS FOR SUBDRAINAGE. RIM GRADE FOR STORM INLETS IN CURB AND GUTTER ARE FLOW LINE GRADES.
7. WORK IN PUBLIC RIGHT OF WAY SHALL FOLLOW MATERIAL AND INSTALLATION REQUIREMENTS PER MUNICIPAL AND/OR COUNTY.
8. PRIVATE STORM SEWER 12-INCH DIAMETER OR LARGER SHALL BE HDPE. BELOW 12-INCH DIAMETER SHALL BE PVC SDR-35 ASTM D3034. PRIVATE WATER MAIN SHALL BE CLASS 235 DR 18 PVC CONFORMING TO AWWA C-900. PRIVATE SANITARY SEWER SHALL BE PVC SDR-35 ASTM D3034.
9. COORDINATE FINAL LOCATION AND DESIGN OF PRIVATE UTILITY SERVICES (ELECTRIC, GAS, PHONE, CABLE) WITH UTILITY COMPANIES.
10. IF PROJECT IS DESIGN BUILD MEP, THE GENERAL CONTRACTOR IS REQUIRED TO PROVIDE FINAL SEWER AND WATER DESIGN SHOWING LOCATION, INVERTS AND SIZES TO THE ENGINEER FOR FINAL REVIEW AND VERIFICATION PRIOR TO STARTING UNDERGROUND UTILITY CONSTRUCTION.
11. WATER MAIN CONNECTION: TAP WATER MAIN WITH SIZE AND LOCATION INDICATED ON PLAN IN ACCORDANCE WITH LOCAL WATER UTILITY REQUIREMENTS. COORDINATE CONNECTION WITH LOCAL WATER UTILITY. ALL JOINTS HALL BE RESTRAINED FROM CONNECTION OF WATER MAIN TO BUILDING WALL. SUBMIT JOINT RESTRAINT DETAILS FOR ALL JOINT TYPES INCLUDING PUSH-ON AND MECHANICAL CONNECTIONS. INSTALL MEGA-LUG OR APPROVED EQUAL TIGHT TO WALL FOR RESTRAINT FOR ALL BUILDING WALL PENETRATIONS AS APPROVED BY LOCAL PLUMBING INSPECTOR AND WATER UTILITY. INSTALL THRUST BLOCKING AND MEGA-LUG AT BEND BELOW FLOOR FOR ALL FLOOR PENETRATIONS.
12. INSTALL JOINT RESTRAINT AND CONCRETE THRUST BLOCKS AT ALL OFFSET FITTINGS (TEES, BENDS, DEAD ENDS, VALVES, REDUCERS) USING MEGA-LUG OR APPROVED EQUAL. CONCRETE THRUST BLOCKS SHALL BE INSTALLED PER FILE NO'S:44,45,46 FROM THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN. SEE DETAIL FOR MINIMUM LENGTH OF RESTRAINED JOINT REQUIRED. SUBMIT JOINT RESTRAINT DETAILS FOR ALL JOINT TYPES INCLUDING PUSH-ON AND MECHANICAL CONNECTIONS.
13. SERVICE LATTERAL CANNOT BE RECONNECTED UNTIL HYDROSTATIC AND BACTERIOLOGICAL TESTING RESULTS ARE OBTAINED.

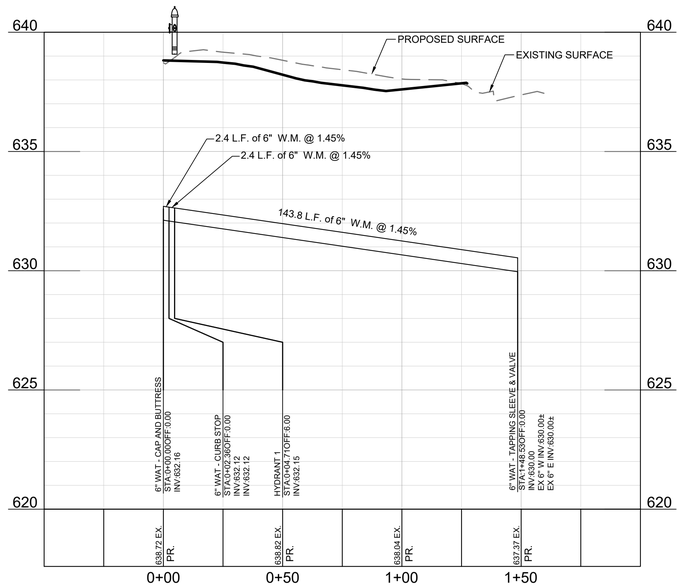
SANITARY PLAN PROFILE

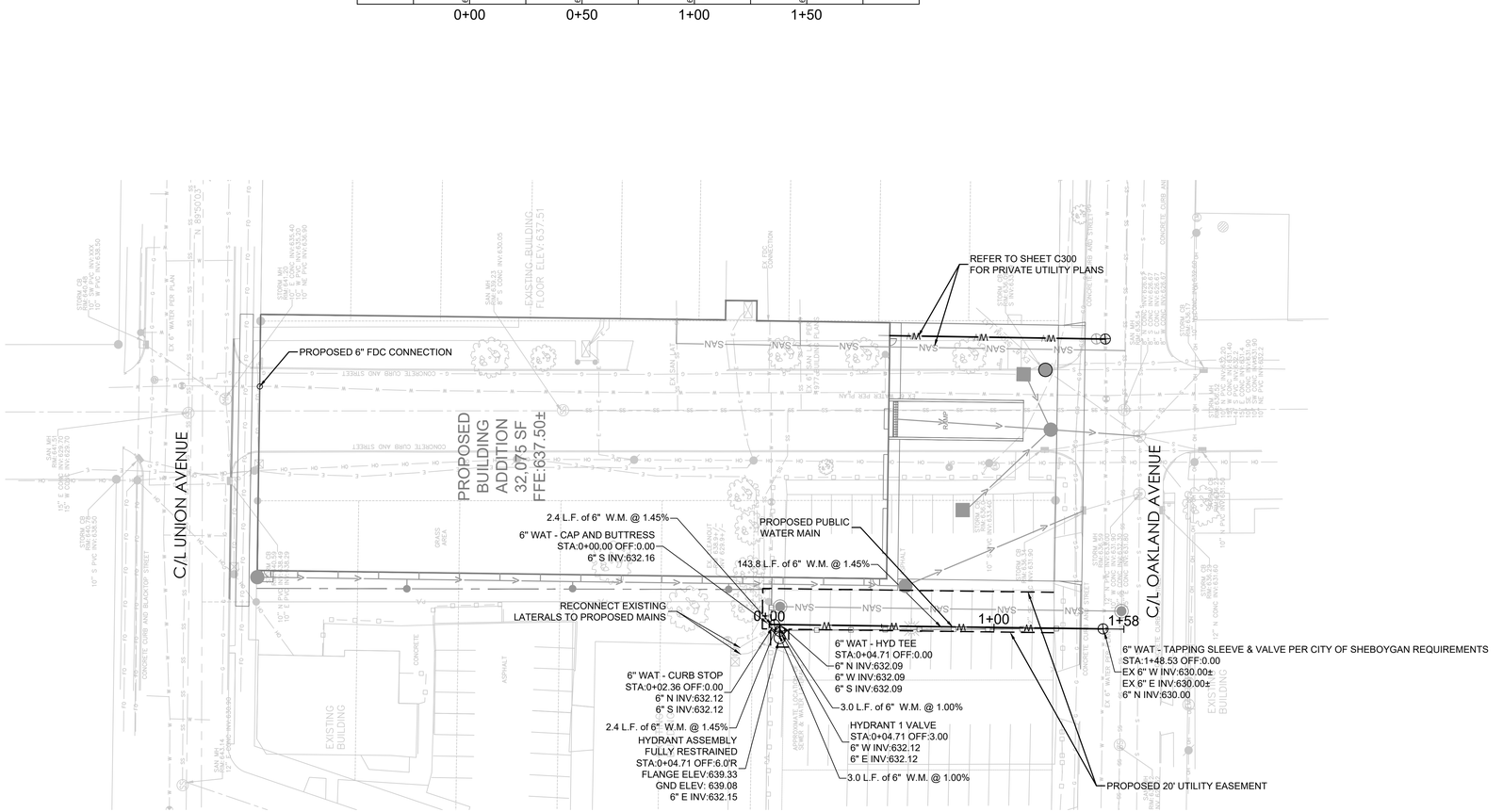
REVISION DESCRIPTION	DATE	REV. BY

A.C.E. BUILDING SERVICE
OUR REPUTATION IS OUR FOUNDATION
P.O. BOX 1626 • 3510 SOUTH 26TH STREET • MANITOWOC, WISCONSIN • 54221-1626
PHONE: 920-682-6105 • FAX: 920-682-7700 • WWW.ACEBUILDINGSERVICE.COM

PROJECT INFORMATION:
HTT WEST EXPANSION
1828 OAKLAND AVENUE
SHEBOYGAN, WI 53081

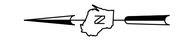
SHEET INFORMATION
A.C.E. JOB NO.
DATE: 12/08/2023
DRAWN BY: AKK
SCALE: 1''=30'
SHEET
C301





CALL DIGGERS HOTLINE
1-800-242-8511
TOLL FREE
WIS STATUTE 182.0175(1974)
REQUIRES MIN. 3 WORK DAYS
NOTICE BEFORE YOU EXCAVATE
MILW. AREA 259-1181

THE UNDERGROUND UTILITY INFORMATION SHOWN ON THIS MAP IS BASED ON FIELD MARKINGS AND INFORMATION FURNISHED BY UTILITY COMPANIES AND THE LOCAL MUNICIPALITY. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, ITS ACCURACY AND COMPLETENESS CANNOT BE GUARANTEED.



LEGEND:

- PROPOSED WATER SERVICE
- PROPOSED PRIVATE WATER SERVICE
- PROPOSED SANITARY SERVICE
- PROPOSED STORM SEWER
- E / C401 — PROPOSED STORM INLET
- F / C401 — PROPOSED STORM MANHOLE
- D / C402 — PROPOSED STORM NYOPLAST DRAIN BASIN
- G / C401 — PROPOSED SANITARY MANHOLE
- A / C402 — PROPOSED HYDRANT ASSEMBLY

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WATER MAIN PLAN PROFILE

REVISION DESCRIPTION	DATE	REV. BY

A.C.E. BUILDING SERVICE
OUR REPUTATION IS OUR FOUNDATION
P.O. BOX 1626 • 3510 SOUTH 26TH STREET • MANITOWOC, WISCONSIN • 54221-1626
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PROJECT INFORMATION:

HTT WEST EXPANSION

1828 OAKLAND AVENUE
SHEBOYGAN, WI 53081

SHEET INFORMATION
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DRAWN BY: AKK
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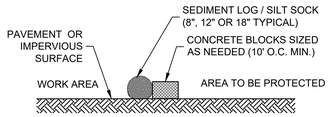
SHEET
C302



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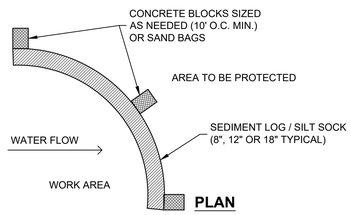
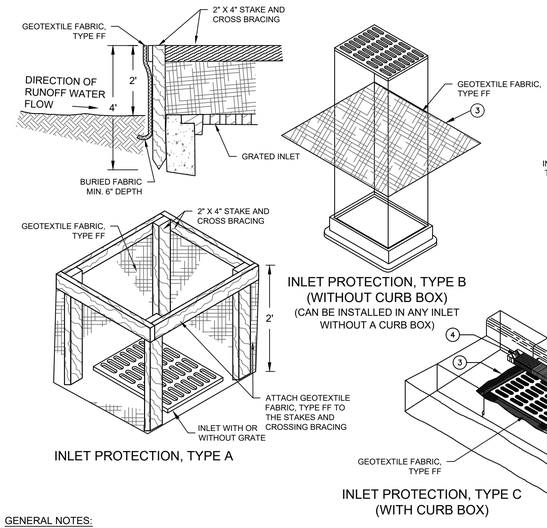


PLAN

A SEDIMENT LOG - SILT SOCK ON PAVEMENT
SCALE:NTS



GENERAL NOTES:

1. MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.
2. WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.
3. FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL
4. FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
5. FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.
6. INLET PROTECTION SHALL CONFORM TO WDNR CONSERVATION PRACTICE STANDARD #1060
7. THIS DRAWING IS BASED ON WISCONSIN DEPARTMENT OF TRANSPORTATION STANDARD DETAIL DRAWING 8 E 10-2

INSTALLATION NOTES:
TYPE B & C
TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE. THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D
DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE. THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACES AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

B INLET PROTECTION - WDNR TS-1060
SCALE:NTS

GENERAL NOTE:

1. STONE TRACKING PAD SHALL CONFORM TO WDNR CONSERVATION PRACTICE STANDARD #1057
2. AN APPROVED MANUFACTURED TRACKOUT CONTROL DEVICE SYSTEM CONFORMING TO WDNR TECHNICAL STANDARD #1057 MAY BE USED AS AN ALTERNATIVE TO A STONE TRACKING PAD

C CONSTRUCTION ENTRANCE - WDNR TS-1057
SCALE:NTS

CONSTRUCTION SEQUENCE FOR EROSION CONTROL INCLUDES:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCE.
2. INSTALL SILT FENCING AND INLET PROTECTION.
3. INITIATE STOCKPILING OF IMPORTED MATERIAL. PLACE SILT FENCE AROUND STOCKPILE(S).
4. STRIP TOPSOIL FROM LOCATION OF STOCKPILE.
5. STRIP TOPSOIL FROM REMAINDER OF SITE IN A PROGRESSIVE MANNER, AND STOCKPILE.
6. PERFORM ROUGH SITE GRADING. STABILIZE FINISHED AREAS AS THE WORK PROGRESSES. USE EROSION MATTING WHERE CALLED FOR ON THE PLANS. PER WDNR TECHNICAL STANDARD 1059: AREAS THAT RECEIVE TEMPORARY SEEDING SHALL HAVE A MINIMUM TOPSOIL DEPTH OF 2 INCHES. AREAS THAT RECEIVE PERMANENT SEEDING SHALL HAVE A MINIMAL TOPSOIL DEPTH OF 4 INCHES.
7. PREPARE BUILDING PAD AND BEGIN FOUNDATIONS WORK FOR BUILDING.
8. INSTALL UTILITIES. INSTALL ANY ADDITIONAL INLET PROTECTION ON NEW STORM SEWER AND INSTALL RIP-RAP AT NEW STORM SEWER OUTFALLS.
9. INSTALL PAVEMENTS.
10. STABILIZE AREAS REMAINING AREAS WITHIN 7 DAYS OF COMPLETION OF FINAL GRADING AND TOPSOILING.
11. REMOVE EROSION CONTROL MEASURES ONLY WHEN SITE IS FULLY STABILIZED.

EROSION CONTROL NOTES:

1. CONSTRUCTION SITE EROSION CONTROL AND SEDIMENTATION CONTROL SHALL COMPLY WITH THE REQUIREMENTS OF THE LOCAL MUNICIPALITY AND SHALL EMPLOY EROSION CONTROL METHODS AS SHOWN AND SPECIFIED IN THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES TECHNICAL STANDARDS.
2. ALL EROSION CONTROL MEASURES SHALL BE ADJUSTED TO MEET FIELD CONDITIONS AT THE TIME OF CONSTRUCTION AND SHALL BE INSTALLED PRIOR TO ANY GRADING OR DISTURBANCE OF EXISTING SURFACE MATERIAL ON THE SITE.
3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED FOR STABILITY AND OPERATION AFTER A RAINFALL OF 0.5 INCHES OR MORE, BUT NO LESS THAN ONCE EVERY WEEK. MAINTENANCE OF ALL EROSION CONTROL STRUCTURES SHALL BE PROVIDED TO INSURE INTENDED PURPOSE IS ACCOMPLISHED. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANUP AND REMOVAL OF ALL SEDIMENT WHEN LEAVING PROPERTY. EROSION CONTROL MEASURES MUST BE IN WORKING CONDITION AT END OF EACH WORK DAY. DOCUMENT AND MAINTAIN RECORDS OF INSPECTIONS IN ACCORDANCE WITH WDNR NR216 REQUIREMENTS.
4. SILT FENCE SHALL BE INSTALLED IN THE LOCATIONS SHOWN ON THE CONSTRUCTION PLANS. SEDIMENT DEPOSITS SHALL BE REMOVED FROM BEHIND THE SILT FENCE WHEN DEPOSITS REACH A DEPTH OF 6 INCHES. THE SILT FENCE SHALL BE REPAIRED OR REPLACED AS NECESSARY TO MAINTAIN A BARRIER.
5. FILTER FABRIC SHALL BE INSTALLED BENEATH INLET COVERS TO TRAP SEDIMENT PER INLET PROTECTION DETAIL IN THE LOCATIONS SHOWN ON THE CONSTRUCTION PLANS.
6. EROSION CONTROL MEASURES SHALL BE MAINTAINED ON A CONTINUING BASIS UNTIL SITE IS FULLY STABILIZED.
7. PERIODIC STREET SWEEPING SHALL BE COMPLETED TO MAINTAIN ADJACENT STREETS FREE OF DUST AND DIRT.
8. SILT FENCE SHALL BE INSTALLED IN HORSESHOE FASHION AROUND ANY TOPSOIL AND FILL STOCKPILES.
9. SITE DEWATERING. WATER PUMPED FROM THE SITE SHALL BE TREATED BY SEDIMENT BASINS OR OTHER APPROPRIATE MEASURES SPECIFIED IN THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES TECHNICAL STANDARDS. WATER MAY NOT BE DISCHARGED IN A MANNER THAT CAUSES EROSION OF THE SITE, ADJACENT SITES, OR RECEIVING CHANNELS.
10. WASTE AND MATERIAL DISPOSAL. ALL WASTE AND UNUSED BUILDING MATERIALS (INCLUDING GARBAGE, DEBRIS, CLEANING WASTES, WASTEWATER, TOXIC MATERIALS, OR HAZARDOUS MATERIALS) SHALL BE PROPERLY DISPOSED AND NOT ALLOWED TO BE CARRIED OFF-SITE BY RUNOFF OR WIND.
11. TRACKING. EACH SITE SHALL HAVE GRAVELED ROADS, ACCESS DRIVES AND PARKING AREAS OF SUFFICIENT WIDTH AND LENGTH TO PREVENT SEDIMENT FROM BEING TRACKED ONTO PUBLIC OR PRIVATE ROADWAYS. ANY SEDIMENT REACHING A PUBLIC OR PRIVATE ROAD SHALL BE REMOVED BY STREET CLEANING, TO THE SATISFACTION OF THE CITY OF SHEBOYGAN BEFORE THE END OF EACH WORKDAY. FLUSHING MAY NOT BE USED UNLESS SEDIMENT WILL BE CONTROLLED BY A SEDIMENT BASIN OR PRACTICE SPECIFIED IN THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES TECHNICAL STANDARDS. NOTIFY THE CITY OF SHEBOYGAN OF ANY CHANGES IN STABILIZED CONSTRUCTION ENTRANCE LOCATION.
12. SEDIMENT CLEANUP. ALL OFF-SITE SEDIMENT DEPOSITS OCCURRING AS A RESULT OF A STORM EVENT SHALL BE CLEANED UP BY THE END OF THE NEXT WORKDAY. ALL OTHER OFF-SITE SEDIMENT DEPOSITS OCCURRING AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE CLEANED UP BY THE END OF THE WORKDAY.
13. ALL DISTURBED GROUND LEFT INACTIVE FOR SEVEN OR MORE DAYS SHALL BE STABILIZED BY TEMPORARY OR PERMANENT SEEDING, MULCHING, SODDING, COVERING WITH TARPS, OR EQUIVALENT PRACTICE FOUND IN THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES TECHNICAL STANDARD. IF TEMPORARY SEEDING IS USED, A PERMANENT COVER SHALL ALSO BE REQUIRED AS PART OF THE FINAL SITE STABILIZATION. SEEDING OR SODDING SHALL BE REQUIRED AS PART OF THE FINAL SITE STABILIZATION.
14. SOIL OR DIRT STORAGE PILES SHALL BE LOCATED A MINIMUM OF TWENTY-FIVE FEET FROM ANY DOWNSLOPE ROAD, LAKE, STREAM, WETLAND, OR DRAINAGE CHANNEL. STRAW BALE OR FILTER FABRIC FENCES SHALL BE PLACED ON THE DOWN SLOPE SIDE OF THE PILES. IF REMAINING FOR MORE THAN THIRTY DAYS, PILES SHALL BE STABILIZED BY MULCHING, VEGETATIVE COVER, TARPS OR OTHER MEANS.
15. WHEN THE DISTURBED AREA HAS BEEN STABILIZED BY PERMANENT VEGETATION OR OTHER MEANS, TEMPORARY PRACTICES, SUCH AS FILTER FABRIC FENCES, STRAW BALES, SEDIMENT AND SEDIMENT TRAPS, FOUND IN THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES TECHNICAL STANDARDS SHALL BE REMOVED.
16. NOTIFY THE LOCAL MUNICIPALITY HAVING JURISDICTION WITHIN TWO WORKING DAYS OF COMMENCING ANY LAND DEVELOPMENT OR LAND DISTURBING ACTIVITY.
17. OBTAIN PERMISSION FROM THE LOCAL MUNICIPALITY HAVING JURISDICTION PRIOR TO MODIFYING THE EROSION CONTROL PLAN.
18. REPAIR ANY SILTATION OR EROSION DAMAGE TO ADJOINING SURFACES AND DRAINAGE WAYS RESULTING FROM LAND DEVELOPMENT OR LAND DISTURBING ACTIVITIES.
19. KEEP A COPY OF THE EROSION CONTROL PLAN ON SITE.
20. CONTRACTOR SHALL, TO THE EXTENT POSSIBLE, MINIMIZE DISTURBANCE OF EXISTING VEGETATION DURING CONSTRUCTION.
21. CONTRACTOR SHALL, TO THE EXTENT POSSIBLE, MINIMIZE COMPACTION OF TOPSOIL AND PRESERVE TOPSOIL IN GREENSPACE AREAS.
22. WASH WATER FROM VEHICLES AND WHEEL WASHING SHALL BE CONTAINED AND TREATED PRIOR TO DISCHARGE.
23. CONTRACTOR SHALL MAINTAIN SPILL KITS ON-SITE.
24. PERMAMENT TURF SEEDING OF DISTURBED AREA MUST OCCUR PRIOR TO SEPTEMBER 15TH. IF ADEQUATE TIME IS NOT AVAILABLE TO APPLY PERMANENT SEEDING PRIOR TO SEPTEMBER 15TH, THEN DISTURBED AREAS SHALL BE TEMPORARILY SEEDED WITH AN ANNUAL RYE GRASS PER WDNR TECHNICAL STANDARD 1059, WHERE THE TEMPORARY SEEDING MUST OCCUR PRIOR TO OCTOBER 15TH.
25. IF TEMPORARY SEEDING IS NOT COMPLETED BY OCTOBER 15TH, APPLY SOIL STABILIZERS AND DORMANT SEED TO DISTURBED AREA PER WDNR TECHNICAL STANDARD 1050. INSPECT ANIONIC PAM APPLICATION AT A MINIMUM FREQUENCY OF EVERY TWO MONTHS AND REAPPLY AS NECESSARY

EROSION CONTROL DETAILS

REVISION DESCRIPTION	DATE	REV. BY

A.C.E. BUILDING SERVICE
OUR REPUTATION IS OUR FOUNDATION
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DATE: 12/08/2023
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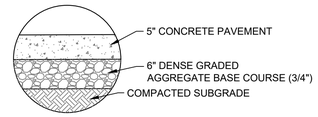
SCALE: NTS
SHEET
C400



A CONCRETE SIDEWALK SECTION
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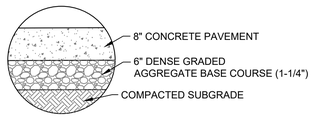

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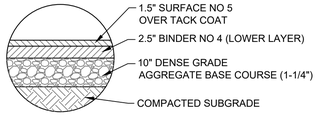
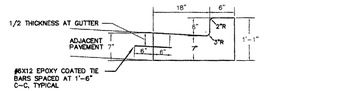
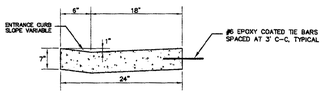


C ASPHALT PAVEMENT SECTION - HD
SCALE:NTS

SECTION PAVEMENT DETAILS





CONCRETE CURB AND GUTTER 24-INCH
FOR REPLACEMENT ADJ. TO EXIST. 6" OR 8" CURB HEAD
& CONCRETE DRIVEWAY ADJ. TO 6" OR 8" CURB HEAD

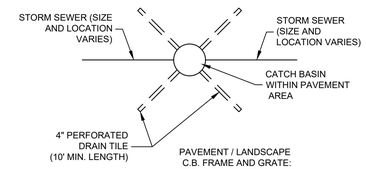
CONCRETE CURB AND GUTTER INTEGRAL, TYPE A
6" OR 8" CURB HEAD

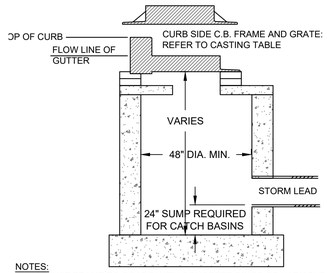
City of Sheboygan spirit on the lake

N.T.S.
REVISED JAN.22, 2014
Page 3

D CITY OF SHEBOYGAN CONCRETE CURB AND GUTTER DETAIL
SCALE:NTS

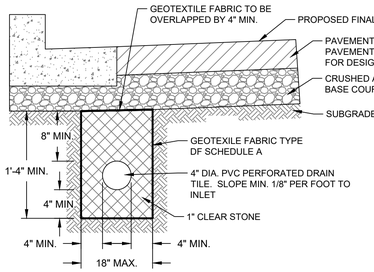
CATCH BASIN WITHIN LOW POINT OF PAVEMENT AREA





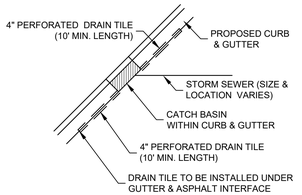
NOTES:
1. ADJUST FRAME TO GRADE WITH CONCRETE RINGS OF VARIABLE THICKNESS. MAXIMUM RING HEIGHT = 6". MINIMUM RING HEIGHT = 2". CONCRETE RINGS SHALL BE REINFORCED WITH ONE LINE OF STEEL CENTERED WITHIN THE RING.
2. CONCRETE AND REINFORCEMENT STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION C-478.
3. 3" MIN. BEDDING OF STONE UNDER BASE REQUIRED , ADDITIONAL BEDDING STOME MAY BE REQUIRED ON WET SUB-GRADE.
4. UNLESS NOTED ON THE PLANS CONTRACTOR IS RESPONSIBLE FOR ALL CATCH BASIN SIZING AND SHALL PROVIDE A SHOP DRAWING TO THE SIGMA GROUP, INC. BEFORE THEY ARE RELEASED FOR PRODUCTION.

E STORM INLET AND CATCH BASIN
SCALE:NTS

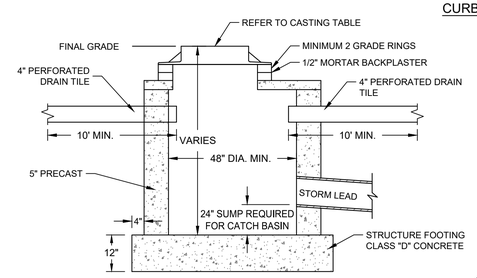


CURB INLET LOCATION SECTION

NOTE:
DRAIN TILE SHALL HAVE TWO (2) SEGMENTS POSITIONED ALONG THE GUTTER & ASPHALT INTERFACE.

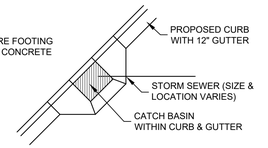


CURB INLET WITHIN CURB & GUTTER PLAN



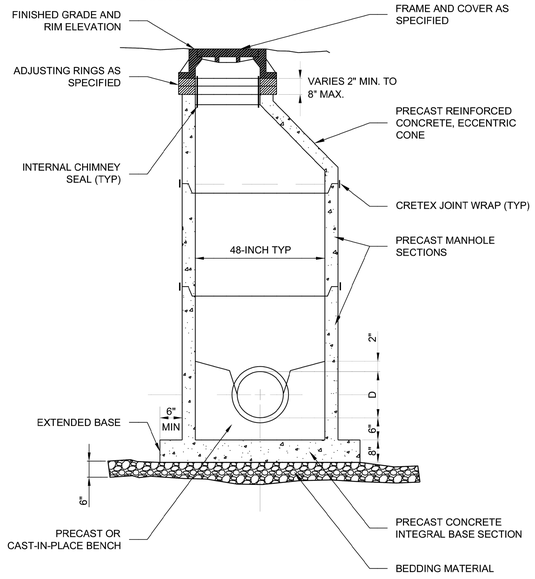
CATCH BASIN / INLET CASTING TABLE

	IF 18" CURB & GUTTER		IF 24" CURB & GUTTER		IF 30" CURB AND GUTTER	
	CASTING	GRATE	CASTING	GRATE	CASTING	GRATE
CURB INLET	NEENAH R-3067	A	NEENAH R-3067	A	NEENAH R-3228H	C
AREA INLET	NEENAH R-2050	C				



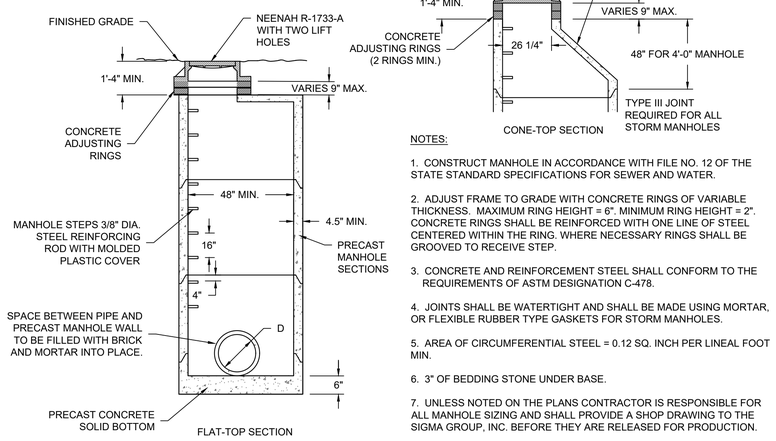
CONCRETE BUMP OUT TO BE APPLIED FOR 12" GUTTER PAN

NOTES:
1. CONTRACTOR SHALL ADJUST SURROUNDING GRADES TO BLEND INTO MANHOLE FRAME AND COVER. FRAME AND COVER TO REMAIN LEVEL.
2. NO CONNECTIONS FROM SANITARY LATERALS DIRECTLY TO MANHOLE.



STANDARD SANITARY MANHOLE DETAIL
NTS

G CITY OF SHEBOYGAN STANDARD SANITARY MANHOLE DETAIL
SCALE:NTS

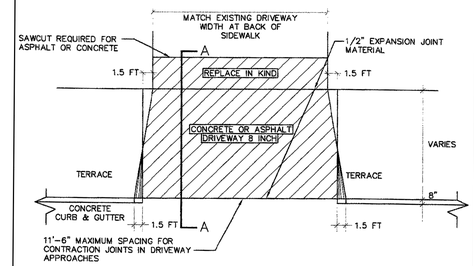


NOTES:

1. CONSTRUCT MANHOLE IN ACCORDANCE WITH FILE NO. 12 OF THE STATE STANDARD SPECIFICATIONS FOR SEWER AND WATER.
2. ADJUST FRAME TO GRADE WITH CONCRETE RINGS OF VARIABLE THICKNESS. MAXIMUM RING HEIGHT = 6". MINIMUM RING HEIGHT = 2". CONCRETE RINGS SHALL BE REINFORCED WITH ONE LINE OF STEEL CENTERED WITHIN THE RING. WHERE NECESSARY RINGS SHALL BE GROOVED TO RECEIVE STEP.
3. CONCRETE AND REINFORCEMENT STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION C-478.
4. JOINTS SHALL BE WATERTIGHT AND SHALL BE MADE USING MORTAR, OR FLEXIBLE RUBBER TYPE GASKETS FOR STORM MANHOLES.
5. AREA OF CIRCUMFERENTIAL STEEL = 0.12 SQ. INCH PER LINEAL FOOT MIN.
6. 3" OF BEDDING STONE UNDER BASE.
7. UNLESS NOTED ON THE PLANS CONTRACTOR IS RESPONSIBLE FOR ALL MANHOLE SIZING AND SHALL PROVIDE A SHOP DRAWING TO THE SIGMA GROUP, INC. BEFORE THEY ARE RELEASED FOR PRODUCTION.

F PRECAST STORM MANHOLE
SCALE:NTS

SECTION MISCELLANEOUS DETAILS



PRIVATE OR COMMERCIAL DRIVEWAYS

City of Sheboygan spirit on the lake

N.T.S.
REVISED JAN.22, 2014
Page2

H CITY OF SHEBOYGAN COMMERCIAL DRIVEWAY DETAIL
SCALE:NTS

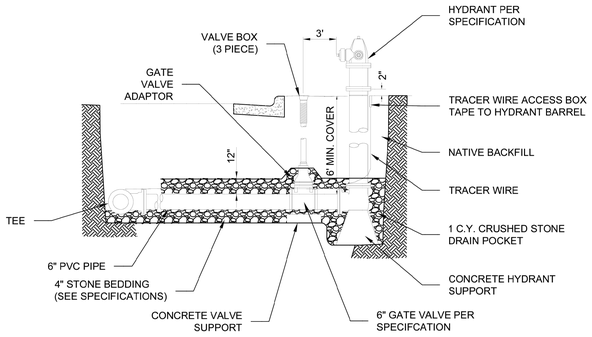
DETAILS

REVISION DESCRIPTION	DATE	REV. BY

A.C.E. BUILDING SERVICE
OUR REPUTATION IS OUR FOUNDATION
P.O. BOX 1626 • 3510 SOUTH 26TH STREET • MANITOWOC, WISCONSIN • 54221-1626
PHONE: 920-682-0105 • FAX: 920-682-7700 • WWW.ACEBUILDINGSERVICE.COM

PROJECT INFORMATION:
HTT WEST EXPANSION
1828 OAKLAND AVENUE
SHEBOYGAN, WI 53081

SHEET INFORMATION
A.C.E. JOB NO.
DATE: 12/08/2023
DRAWN BY: AKK
SCALE: NTS
SHEET
C401



NOTE:
WITH THE WRITTEN APPROVAL OF THE ENGINEER, TIE RODS AND/OR THRUST BLOCKS MAY BE USED AS AN ALTERNATIVE TO MECHANICAL JOINT RESTRAINT. RESTRAIN ALL JOINTS FROM MAIN TEE TO HYDRANT.

POLY WRAP HYDRANT ASSY., D.I. PIPE AND TEE.

HYDRANT AND VALVE INSTALLATION DETAIL

NTS

Ⓐ CITY OF SHEBOYGAN HYDRANT AND VALVE INSTALLATION
SCALE:NTS

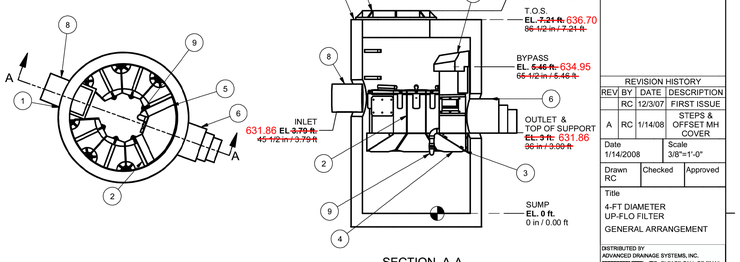
WATER MAIN JOINT RESTRAINT DISTANCE (FT) PER FITTING

FITTING TYPE	4" DIAMETER	6" DIAMETER	8" DIAMETER	12" DIAMETER	16" DIAMETER	20" DIAMETER
HORIZONTAL BEND - 11.25°	5	5	5	5	8	8
HORIZONTAL BEND - 22.5°	8	8	8	10	10	15
HORIZONTAL BEND - 45°	10	10	12	16	20	26
HORIZONTAL BEND - 90°	16	20	25	32	40	52
* RESTRAIN LARGER SIZED PIPE						
REDUCER - DIA. X 4"	-	25	50	60	80	130
REDUCER - DIA. X 6"	-	-	25	60	100	125
REDUCER - DIA. X 8"	-	-	-	50	80	120
REDUCER - DIA. X 12"	-	-	-	-	50	100
REDUCER - DIA. X 16"	-	-	-	-	-	50
DEAD END	40	40	60	90	120	150
TEE OR CROSS - RUN	10	10	10	20	30	40
TEE - 4" BRANCH	8	6	6	6	6	6
TEE - 6" BRANCH	-	8	6	6	6	6
TEE - 8" BRANCH	-	-	10	6	6	6
TEE - 12" BRANCH	-	-	-	12	6	6
TEE - 16" BRANCH	-	-	-	-	30	10
TEE - 20" BRANCH	-	-	-	-	-	50
VERTICAL BEND - 45° - UPPER	12	20	26	40	50	60
VERTICAL BEND - 45° - LOWER	5	5	6	10	12	14
VERTICAL BEND - 22.5° - UPPER	8	10	14	18	24	28
VERTICAL BEND - 22.5° - LOWER	4	5	5	8	8	8
VERTICAL BEND - 11.25° - UPPER	6	6	8	10	12	14
VERTICAL BEND - 11.25° LOWER	4	4	4	4	4	6

* WHERE RESTRAINT LENGTHS ARE NOT IDENTIFIED ON THE PLANS, THE VALUES IN THIS TABLE SHALL BE PROVIDED AS A MINUMUM

Ⓑ JOINT RESTRAINT TABLE
SCALE:NTS

NOTE: TYPICAL UPFLO DEVICE DETAIL SHOWN WITH 6 FILTER MODULES. ONLY 2 ARE NEEDED. SITE SPECIFIC DETAIL TO BE PROVIDED AT TIME OF CONSTRUCTION ISSUANCE.



SECTION A-A

Notes

REVISION HISTORY			
REV	BY	DATE	DESCRIPTION
	RC	12/3/07	FIRST ISSUE
A	RC	1/14/08	STEPS & OFFSET MH COVER

Date 1/14/2008 | Scale 3/8"=1'-0"
Drawn RC | Checked | Approved

Title
4-FT DIAMETER UP-FLO FILTER
GENERAL ARRANGEMENT

DISTRIBUTED BY
ADVANCED DRAINAGE SYSTEMS, INC.
ADS PLEASE CALL OR EMAIL JANE BRUNCKHILER FOR PRICING
Jane.Brunoehler@ads-pipe.com 262-794-2306

Hydro International

94 Hutchins Drive
Portland, Maine 04102
Tel: (207) 756-6200
Fax: (207) 756-6212
Email: hiltech@hil-tech.com

CAD Ref: U4S1
Project No.
Drawing No. U4S1 Rev. A

EQUIPMENT PERFORMANCE
The stormwater filtration system shall adhere to the parameters listed below:
Minimum Performance Criteria: 80% removal of Sil-Co-Sil 106 at the peak treatment flow. 2
Peak Treatment Flow for ~~6~~ 2 Filter Modules: 150 gpm (9.46 l/s)
Minimum Bypass Capacity: 1527 gpm (96.20 l/s)
Minimum Sediment Storage Capacity: 16.6 cu. ft. (0.47 cu. m.)
Minimum Oil Storage Capacity: 50 gal. (189 liters)

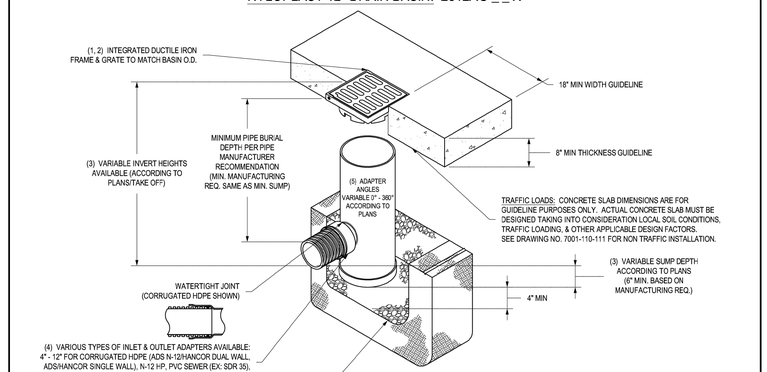
OUTLET PIPE STUB SIZE INFORMATION
Outside Diameter: 10.5", 12.5" or 15.3" OD
Concrete Penetration: Pipe Boot (by Hydro)
Hook-up: Fernco-type coupling (by others)

Parts List

ITEM	QTY	SIZE	DESCRIPTION
1	1	48 in	CONCRETE MANHOLE
2	~~6~~ 2		FILTER MODULE
3	1		SUPPORT
4	1		ANGLED SCREEN
5	1		SIPHONIC BYPASS AND FLOATABLES BAFFLE
6	1		OUTLET MODULE AND PIPE STUB
7	1	30 in	FRAME AND COVER
8	1	12 in	INLET PIPE
9	1		DRAINDOWN FILTER

Ⓒ TYPICAL UPFLO FILTER
SCALE:NTS

NYLOPLAST 12" DRAIN BASIN: 2812AG _ _ X



GRATE OPTIONS	LOAD RATING	PART #	DRAWING #
PEDESTRIAN	MEETS H-10	1299CGP	7001-110-202
STANDARD	MEETS H-20	1299CGS	7001-110-203
SOLID COVER	MEETS H-20	1299CGC	7001-110-204
PEDESTRIAN BRONZE	N/A	1299CGPB	7001-110-205
DOME	N/A	1299CGD	7001-110-206
DROP IN GRATE	LIGHT DUTY	1201DI	7001-110-021

1 - GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05, WITH THE EXCEPTION OF THE BRONZE GRATE.
2 - FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001-110-065
4 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP, & PVC SEWER.
5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.

DRAWN BY EBC | MATERIAL
DATE 03-29-06
REVISED BY NMH | PROJECT NO./NAME
DATE 03-11-16
DWG SIZE A | SCALE 1:20 | SHEET 1 OF 1

ADS Nyloplast
3130 VERONA AVE
BUFORD, GA 30518
PRIN (770) 932-2443
FAX (770) 932-2490
www.nyloplast-us.com

TITLE
12 IN DRAIN BASIN QUICK SPEC INSTALLATION DETAIL
DWG NO. 7001-110-189 REV E

Ⓓ NYOPLAST 12" DRAIN BASIN
SCALE:NTS

DETAILS

REVISION DESCRIPTION	DATE	REV. BY

A.C.E. BUILDING SERVICE
OUR REPUTATION IS OUR FOUNDATION
P.O. BOX 1626 • 3510 SOUTH 26TH STREET • MANITOWOC, WISCONSIN • 54221-1626
PHONE: 920-682-8105 • FAX: 920-682-7700 • WWW.ACEBUILDINGSERVICE.COM

PROJECT INFORMATION:
HTT WEST EXPANSION
1828 OAKLAND AVENUE
SHEBOYGAN, WI 53081

SHEET INFORMATION
A.C.E. JOB NO.
DATE: 12/08/2023
DRAWN BY: AKK
SCALE:
SHEET
C402

GENERAL:

1. EXISTING UTILITIES ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY, AND NO RESPONSIBILITY IS ASSUMED BY THE OWNER OR ENGINEER FOR THEIR ACCURACY OR COMPLETENESS.
2. CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTRACTOR SHALL HAVE SITE MARKED BY DIGGER'S HOTLINE AND SHALL HAVE PRIVATE UTILITIES MARKED BY A PRIVATE UTILITY LOCATOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL VERIFY ALL ELEVATIONS, LOCATIONS, AND SIZES OF EXISTING UTILITIES AND SHALL CHECK ALL UTILITY CROSSINGS AND PROPOSED CONNECTIONS FOR CONFLICTS/DISCREPANCIES PRIOR TO INITIATING CONSTRUCTION. REPORT ANY CONFLICTS OR DISCREPANCIES TO THE ENGINEER SO REDESIGN MAY OCCUR IF NEEDED.
3. LENGTHS OF ALL UTILITIES ARE TO CENTER OF STRUCTURES OR FITTINGS AND MAY VARY SLIGHTLY FROM PLANS. LENGTHS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.

SITE CLEARING:

1. EXCEPT FOR STRIPPED TOPSOIL OR OTHER MATERIALS INDICATED TO REMAIN ON OWNER'S PROPERTY, CLEARED MATERIALS SHALL BECOME CONTRACTOR'S PROPERTY AND SHALL BE REMOVED FROM PROJECT SITE.
2. MINIMIZE INTERFERENCE WITH ADJOINING ROADS, STREETS, WALKS, AND OTHER ADJACENT OCCUPIED OR USED FACILITIES DURING SITE-CLEARING OPERATIONS.
3. SALVABLE IMPROVEMENTS: CAREFULLY REMOVE ITEMS INDICATED TO BE SALVAGED AND STORE ON OWNER'S PREMISES WHERE INDICATED.
4. UTILITY LOCATOR SERVICE: NOTIFY UTILITY LOCATOR SERVICE FOR AREA WHERE PROJECT IS LOCATED BEFORE SITE CLEARING.
5. DO NOT COMMENCE SITE CLEARING OPERATIONS UNTIL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES ARE IN PLACE.
6. PROTECT AND MAINTAIN BENCHMARKS AND SURVEY CONTROL POINTS FROM DISTURBANCE DURING CONSTRUCTION.
7. LOCATE AND CLEARLY FLAG TREES AND VEGETATION TO REMAIN OR TO BE RELOCATED.
8. PROTECT EXISTING SITE IMPROVEMENTS TO REMAIN FROM DAMAGE DURING CONSTRUCTION; RESTORE DAMAGED IMPROVEMENTS TO THEIR ORIGINAL CONDITION, AS ACCEPTABLE TO OWNER.
9. LOCATE, IDENTIFY, DISCONNECT, AND SEAL OR CAP OFF UTILITIES INDICATED TO BE REMOVED; ARRANGE WITH UTILITY COMPANIES TO SHUT OFF INDICATED UTILITIES.
10. EXISTING UTILITIES: DO NOT INTERRUPT UTILITIES SERVING FACILITIES OCCUPIED BY OWNER OR OTHERS UNLESS PERMITTED BY THE OWNER AND THEN ONLY AFTER ARRANGING TO PROVIDE TEMPORARY UTILITY SERVICES.
11. FILL DEPRESSIONS CAUSED BY CLEARING AND GRUBBING OPERATIONS WITH SATISFACTORY SOIL MATERIAL UNLESS FURTHER EXCAVATION OR EARTHWORK IS INDICATED; PLACE FILL MATERIAL IN HORIZONTAL LAYERS NOT EXCEEDING A LOOSE DEPTH OF 8 INCHES, AND COMPACT EACH LAYER TO A DENSITY EQUAL TO ADJACENT ORIGINAL GROUND.
12. REMOVE SOD AND GRASS BEFORE STRIPPING TOPSOIL.
13. STRIP TOPSOIL TO WHATEVER DEPTHS ARE ENCOUNTERED IN A MANNER TO PREVENT INTERMINGLING WITH UNDERLYING SUBSOIL OR OTHER WASTE MATERIALS.
14. STOCKPILE TOPSOIL MATERIALS AWAY FROM EDGE OF EXCAVATIONS WITHOUT INTERMIXING WITH SUBSOIL. GRADE AND SHAPE STOCKPILES TO DRAIN SURFACE WATER. COVER TO PREVENT WINDBLOWN DUST.
15. REMOVE EXISTING ABOVE- AND BELOW-GRADE IMPROVEMENTS AS INDICATED AND AS NECESSARY TO FACILITATE NEW CONSTRUCTION.
16. SAWCUT ALL PAVEMENTS FULL DEPTH PRIOR TO REMOVAL; SAWCUTS SHALL BE IN STRAIGHT LINES PERPENDICULAR AND/OR PARALLEL TO EXISTING PAVEMENT JOINTS AND PAVEMENT EDGES.
17. REMOVE SURPLUS SOIL MATERIAL, UNSUITABLE TOPSOIL, OBSTRUCTIONS, DEMOLISHED MATERIALS, AND WASTE MATERIALS INCLUDING TRASH AND DEBRIS, AND LEGALLY DISPOSE OF THEM OFF OWNER'S PROPERTY.
18. SEPARATE RECYCLABLE MATERIALS PRODUCED DURING SITE CLEARING FROM OTHER NONRECYCLABLE MATERIALS. STORE OR STOCKPILE WITHOUT INTERMIXING WITH OTHER MATERIALS AND TRANSPORT THEM TO RECYCLING FACILITIES.

STORM DRAINAGE:

1. ALL PRIVATE STORM SEWER WORK SHALL BE IN ACCORDANCE WITH THE DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES (DSPS) PLUMBING CODE - CHAPTERS SPS 382 AND SPS 384 AND LOCAL MUNICIPAL REQUIREMENTS.
2. ALL PUBLIC STORM SEWER WORK SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN, LATEST EDITION (STANDARD SPECIFICATIONS) AND LOCAL MUNICIPAL REQUIREMENTS.
3. PVC SEWER PIPE AND FITTINGS: ASTM D 3034, SDR 35, WITH BELL-AND-SPIGOT ENDS WITH RUBBER GASKETED JOINTS IN ACCORDANCE WITH CHAPTER 8.10.0 OF THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN, LATEST EDITION. JOINTS SHALL CONFORM TO ASTM D-3212.
4. REINFORCED CONCRETE PIPE: ASTM C76 WITH BELL AND SPIGOT ENDS AND GASKETED JOINTS WITH ASTM C443 RUBBER GASKETS IN ACCORDANCE WITH CHAPTER 8.6.0 OF THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN, LATEST EDITION.
5. HDPE PIPE: ADS N12 PIPE AS APPROVED ON THE DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES PLUMBING PRODUCT REGISTER.
6. CATCH BASINS: STANDARD PRECAST CONCRETE CATCH BASINS CONFORMING TO CHAPTER 3.6.0 OF THE STANDARD SPECIFICATIONS AND IN GENERAL CONFORMANCE WITH FILE NO. 26 OF THE STANDARD SPECIFICATIONS. DEPTH AND DIAMETER AS INDICATED ON PLANS. CATCH BASIN SIZES TO BE VERIFIED BY CONTRACTOR AND SHOP DRAWINGS SHALL BE PROVIDED TO THE ENGINEER FOR REVIEW PRIOR TO ORDERING STRUCTURES.
7. FRAMES AND GRATES: AS INDICATED ON PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING SPECIFIED FRAME/GRATE IS COMPATIBLE WITH STRUCTURE; IF NOT, NOTIFY ENGINEER.
8. MANHOLES: STANDARD PRECAST REINFORCED CONCRETE MANHOLES CONFORMING TO ASTM C478, SECTION 8.39.0 OF THE STANDARD SPECIFICATIONS AND CONFORMING TO FILE NOS. 12, 13 AND 15 OF THE STANDARD SPECIFICATIONS. DIAMETER AND DEPTH AS INDICATED ON PLANS. MANHOLE SIZES TO BE VERIFIED BY CONTRACTOR AND SHOP DRAWINGS SHALL BE PROVIDED TO THE ENGINEER FOR REVIEW PRIOR TO ORDERING STRUCTURES.
9. MANHOLES AND CATCH BASINS DEEPER THAN FOUR FEET SHALL BE PROVIDED WITH MANHOLE STEPS CONFORMING TO SECTION 8.40.0 OF THE STANDARD SPECIFICATIONS.
10. SEWERS SHALL BE INSTALLED IN CONFORMANCE WITH SECTION 3.2.0 OF THE STANDARD SPECIFICATIONS. INSTALL PROPER SIZE INCREASERS, REDUCERS AND COUPLINGS WHERE DIFFERENT SIZES OR MATERIALS OF PIPES AND FITTINGS ARE CONNECTED. INSTALL TRACER PIPE OVER NON-METALLIC PIPING IN ACCORDANCE WITH SPS SECTION 382.30(11)(H) AND 382.36(7)(D).
11. PROVIDE AND INSTALL CLEANOUTS IN ACCORDANCE WITH SPS CHAPTER 382.35. INSTALL CLEANOUTS AND RISER EXTENSIONS FORM SEWER PIPES TO PROPOSED GRADE. INSTALL PIPING SO CLEANOUTS OPEN IN DIRECTION OF FLOW IN SEWER PIPE. USE LIGHT DUTY, TOP LOADING CLASSIFICATION CLEANOUTS IN EARTH OR UNPAVED FOOT TRAFFIC AREAS; USE MEDIUM DUTY, TOP-LOADING CLASSIFICATION CLEANOUTS IN PAVED FOOT TRAFFIC AREAS; USE HEAVY DUTY, TOP-LOADING CLASSIFICATION CLEANOUTS IN VEHICULAR TRAFFIC AREAS. SET CLEANOUT FRAMES AND COVERS IN PAVEMENT AREAS FLUSH WITH PAVEMENT SURFACE.
12. CLASS B COMPACTED TRENCH SECTION (FILE NO. NO. 4 OF STANDARD SPECIFICATIONS) SHALL BE UTILIZED. BEDDING AND COVER MATERIAL SHALL BE IN ACCORDANCE WITH SECTION 8.43.0 OF THE STANDARD SPECIFICATIONS.
13. TRENCH BACKFILL MATERIAL SHALL BE GRANULAR BACKFILL IN ACCORDANCE WITH SECTION 8.43.4 OF THE STANDARD SPECIFICATIONS BENEATH AND WITHIN FIVE FEET OF PAVEMENT AREAS; COMPACTED SPOIL BACKFILL IN ACCORDANCE WITH SECTION 8.43.5 OF THE STANDARD SPECIFICATIONS MAY BE USED BENEATH LANDSCAPE AREAS.
14. MANHOLE INSTALLATION SHALL BE IN ACCORDANCE WITH SECTION 3.5.0 OF THE STANDARD SPECIFICATIONS. SET MANHOLE RIMS TO ELEVATIONS INDICATED ON PLANS.
15. CATCH BASIN INSTALLATION SHALL BE IN ACCORDANCE WITH SECTION 3.6 OF THE STANDARD SPECIFICATIONS. CATCH BASIN EXCAVATION AND PREPARATION SHALL BE IN ACCORDANCE WITH SECTION 3.5.4(A) AND (B) OF THE STANDARD SPECIFICATIONS. FRAMES AND GRATES SHALL BE SET TO THE ELEVATIONS SHOWN ON THE PLANS.
16. AFTER INSTALLATION OF SEWER PIPE CLEAN ALL DEBRIS FROM SEWER AND INSPECT INTERIOR OF PIPING TO DETERMINE WHETHER LINE DISPLACEMENT OR OTHER DAMAGE HAS OCCURRED. CONDUCT DEFLECTION TESTING OF INSTALLED PIPE IN ACCORDANCE WITH SECTION 3.2.6(I)4 OF THE STANDARD SPECIFICATIONS; REPLACE ANY PIPE SECTION NOT PASSING THE DEFLECTION TESTING USING NEW PIPE MATERIALS.

SANITARY SEWERAGE:

1. ALL PRIVATE SANITARY SEWER WORK SHALL BE IN ACCORDANCE WITH THE DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES (DSPS) PLUMBING CODE - CHAPTERS SPS 382 AND SPS 384 AND LOCAL MUNICIPAL REQUIREMENTS.
2. ALL PUBLIC SANITARY SEWER WORK SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN, LATEST EDITION (STANDARD SPECIFICATIONS) AND LOCAL MUNICIPAL REQUIREMENTS.
3. PVC SEWER PIPE AND FITTINGS: ASTM D 3034, SDR 35, WITH BELL-AND-SPIGOT ENDS WITH RUBBER GASKETED JOINTS IN ACCORDANCE WITH CHAPTER 8.10.0 OF THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN, LATEST EDITION. JOINTS SHALL CONFORM TO ASTM D-3212.
4. MANHOLES: STANDARD PRECAST REINFORCED CONCRETE MANHOLES CONFORMING TO ASTM C478, SECTION 8.39.0 OF THE STANDARD SPECIFICATIONS AND CONFORMING TO FILE NOS. 12, 13 AND 15 OF THE STANDARD SPECIFICATIONS. DIAMETER AND DEPTH AS INDICATED ON PLANS. MANHOLE SIZES TO BE VERIFIED BY CONTRACTOR AND SHOP DRAWINGS SHALL BE PROVIDED TO THE ENGINEER FOR REVIEW PRIOR TO ORDERING STRUCTURES.
5. MANHOLES DEEPER THAN FOUR FEET SHALL BE PROVIDED WITH MANHOLE STEPS CONFORMING TO SECTION 8.40.0 OF THE STANDARD SPECIFICATIONS.
6. SEWERS SHALL BE INSTALLED IN CONFORMANCE WITH SECTION 3.2.0 OF THE STANDARD SPECIFICATIONS. INSTALL PROPER SIZE INCREASERS, REDUCERS AND COUPLINGS WHERE DIFFERENT SIZES OR MATERIALS OF PIPES AND FITTINGS ARE CONNECTED. INSTALL TRACER PIPE OVER NON-METALLIC PIPING IN ACCORANCE WITH SPS SECTION 382.30(11)(H) AND 382.36(7)(D).
7. PIPE JOINT CONSTRUCTION: FOLLOW PIPING MANUFACTURER'S RECOMMENDATIONS; JOIN PVC SEWER PIPE ACCORDING TO ASTM D2321 AND ASTM D 3212 FOR ELASTOMERIC GASKET JOINTS. JOIN DISSIMILAR PIPE MATERIALS WITH NONPRESSURE-TYPE, FLEXIBLE COUPLINGS
7. PROVIDE AND INSTALL CLEANOUTS IN ACCORDANCE WITH SPS CHAPTER 382.35. INSTALL CLEANOUTS AND RISER EXTENSIONS FORM SEWER PIPES TO PROPOSED GRADE. INSTALL PIPING SO CLEANOUTS OPEN IN DIRECTION OF FLOW IN SEWER PIPE. USE LIGHT DUTY, TOP LOADING CLASSIFICATION CLEANOUTS IN EARTH OR UNPAVED FOOT TRAFFIC AREAS; USE MEDIUM DUTY, TOP-LOADING CLASSIFICATION CLEANOUTS IN PAVED FOOT TRAFFIC AREAS; USE HEAVY DUTY, TOP-LOADING CLASSIFICATION CLEANOUTS IN VEHICULAR TRAFFIC AREAS. SET CLEANOUT FRAMES AND COVERS IN PAVEMENT AREAS FLUSH WITH PAVEMENT SURFACE.
8. CLASS B COMPACTED TRENCH SECTION (FILE NO. NO. 4 OF STANDARD SPECIFICATIONS) SHALL BE UTILIZED. BEDDING AND COVER MATERIAL SHALL BE IN ACCORDANCE WITH SECTION 8.43.0 OF THE STANDARD SPECIFICATIONS.

SANITARY SEWERAGE:

9. TRENCH BACKFILL MATERIAL SHALL BE GRANULAR BACKFILL IN ACCORDANCE WITH SECTION 8.43.4 OF THE STANDARD SPECIFICATIONS BENEATH AND WITHIN FIVE FEET OF PAVEMENT AREAS; COMPACTED SPOIL BACKFILL IN ACCORDANCE WITH SECTION 8.43.5 OF THE STANDARD SPECIFICATIONS MAY BE USED BENEATH LANDSCAPE AREAS.
10. MANHOLE INSTALLATION SHALL BE IN ACCORDANCE WITH SECTION 3.5.0 OF THE STANDARD SPECIFICATIONS. SET MANHOLE RIMS TO ELEVATIONS INDICATED ON PLANS.
11. AFTER INSTALLATION OF SEWER PIPE CLEAN ALL DEBRIS FROM SEWER AND INSPECT INTERIOR OF PIPING TO DETERMINE WHETHER LINE DISPLACEMENT OR OTHER DAMAGE HAS OCCURRED. CONDUCT DEFLECTION TESTING OF INSTALLED PIPE IN ACCORDANCE WITH SECTION 3.2.6(I)4 OF THE STANDARD SPECIFICATIONS; REPLACE ANY PIPE SECTION NOT PASSING THE DEFLECTION TESTING USING NEW PIPE MATERIALS. TEST NEW BUILDING SEWER IN ACCORDANCE WITH SECTION 5.4.0 OF THE STANDARD SPECIFICATIONS. REPLACE LEAKING PIPE USING NEW PIPE MATERIALS AAND REPEAT TESTING UNTIL LEAKAGE IS WITHIN ALLOWANCES SPECIFIED.

EARTH MOVING:

1. ALL EARTH WORK SHALL BE DONE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER PRESENTED IN THE SITE GEOTECHNICAL REPORT, GEOTECHNICAL ENGINEER RECOMMENDATIONS MADE IN THE FIELD AND THESE SPECIFICATIONS. IN CASE OF CONFLICT BETWEEN THESE SPECIFICATIONS AND THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER, THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER SHALL GOVERN.
2. CONTRACTOR SHALL PROVIDE MATERIAL TEST REPORTS FROM A QUALIFIED TESTING AGENCY INDICATING TEST RESULTS FOR CLASSIFICATION ACCORDING TO ASTM D2487 AND LABORATORY COMPACTION CURVES ACCORDING TO ASTM D 1557 FOR EACH ON-SITE AND OFF-SITE SOIL MATERIAL PROPOSED FOR FILL AND BACKFILL.
3. CONTRACTOR SHALL PROVIDE PREEXCAVATION PHOTOS OR VIDEOS SHOWING EXISTING CONDITIONS OF ADJOINING STRUCTURES AND SITE IMPROVEMENTS THAT MIGHT BE MISCONSTRUED AS DAMAGE CAUSED BY EARTHWORK OPERATIONS.
4. OLD BUILDING FOUNDATIONS, BUILDING REMNANTS OR UNSUITABLE BACKFILL MATERIAL SHALL BE COMPLETELY REMOVED FROM WITHIN AND A MINIMUM OF 10 FEET BEYOND THE NEW BUILDING PAD AREAS. THE RESULTING EXCAVATION SHALL BE BACKFILLED WITH COMPACTED ENGINEERED FILL.
5. FOUNDATIONS, FOUNDATION WALLS OR CONCRETE FLOOR SLABS SHALL BE REMOVED TO A MINIMUM OF TWO FEET BELOW PROPOSED SUBGRADE WITHIN PROPOSED PARKING AND GREENSPACE AREAS. BASEMENT SLABS LOCATED BELOW 2 FEET FROM PLANNED SUBGRADE ELEVATION MAY BE LEFT IN PLACE BUT SHALL BE BROKEN INTO MAXIMUM 6 INCH PIECES TO FACILITATE DRAINAGE.
6. SATISFACTORY SOILS FOR FILL: ASTM D 2487 SOIL CLASSIFICATION GROUPS GW, GP, GM, SW, SP, AND SM OR A COMBINATION OF THESE GROUPS; FREE OF ROCK OR GRAVEL LARGER THAN 3 INCHES IN ANY DIMENSION, DEBRIS, WASTE, FROZEN MATERIALS, VEGETATION, AND OTHER DELETERIOUS MATTER OR ANY SOIL GROUP OR COMBINATION OF GROUPS APPROVED OF BY THE PROJECT GEOTECHNICAL ENGINEER.
7. UNSATISFACTORY SOILS FOR FILL: SOIL CLASSIFICATION GROUPS GC, SC, CL, ML, OL, CH, MH, OH, AND PT ACCORDING TO ASTM D 2487 OR A COMBINATION OF THESE GROUPS UNLESS DEEMED SATISFACTORY BY THE PROJECT GEOTECHNICAL ENGINEER. UNSATISFACTORY SOILS ALSO INCLUDE SOILS NOT MAINTAINED WITHIN 3 PERCENT OF OPTIMUM SOIL MOISTURE CONTENT AT THE TIME OF COMPACTION.
8. AGGREGATE BASE COURSE BENEATH PAVEMENTS: SHALL BE 1-1/4" DENSE GRADED BASE COURSE CONFORMING TO SECTION 305 OF THE STATE OF WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, LATEST EDITION.
9. ENGINEERED FILL: NATURALLY OR ARTIFICIALLY GRADED MIXTURE OF NATURAL OR CRUSHED GRAVEL, CRUSHED STONE, AND NATURAL OR CRUSHED SAND; ASTM D 2940; WITH AT LEAST 90 PERCENT PASSING A 1-1/2-INCH (37.5-MM) SIEVE AND NOT MORE THAN 12 PERCENT PASSING A NO. 200 SIEVE OR ANY SOIL DEEMED ACCEPTABLE FOR ENGINEERED FILL BY THE PROJECT GEOTECHNICAL ENGINEER. ENGINEERED FILL SHALL BE FREE OF ORGANIC, FROZEN, OR OTHER DELETERIOUS MATERIAL AND HAVE A MAXIMUM PARTICLE SIZE LESS THAN 3 INCHES. CLAY FILLS SHALL HAVE A LIQUID LIMIT OF LESS THAN 49 AND PLASTICITY INDEX BETWEEN 11 AND 25.
10. BEDDING COURSE FOR SEWERS AND WATER SERVICE: NATURALLY OR ARTIFICIALLY GRADED MIXTURE OF NATURAL OR CRUSHED GRAVEL, CRUSHED STONE, AND NATURAL OR CRUSHED SAND CONFORMING TO THE REQUIREMENTS OF SECTION 8.43.2 OF THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN, LATEST EDITION.
11. DRAINAGE COURSE BENEATH BUILDING SLABS: NARROWLY GRADED MIXTURE OF WASHED, CRUSHED STONE, OR CRUSHED OR UNCRUSHED GRAVEL; ASTM D 448; COARSE-AGGREGATE GRADING SIZE 57; WITH 100 PERCENT PASSING A 1-1/2-INCH (37.5-MM) SIEVE AND 0 TO 5 PERCENT PASSING A NO. 8 SIEVE.
12. TRENCH BACKFILL MATERIAL SHALL BE GRANULAR BACKFILL IN ACCORDANCE WITH SECTION 8.43.4 OF THE STANDARD SPECIFICATIONS BENEATH AND WITHIN FIVE FEET OF PAVEMENT AREAS; COMPACTED SPOIL BACKFILL IN ACCORDANCE WITH SECTION 8.43.5 OF THE STANDARD SPECIFICATIONS MAY BE USED BENEATH LANDSCAPE AREAS.
13. PIPE COVER MATERIAL: CONFORM TO SECTION 8.43.3 OF THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN, LATEST EDITION.
14. PREVENT SURFACE WATER AND GROUND WATER FROM ENTERING EXCAVATIONS, FROM PONDING ON PREPARED SUBGRADES, AND FROM FLOODING PROJECT SITE AND SURROUNDING AREA.
15. SHORING, SHEETING AND BRACING: SHORE, BRACE OR SLOPE BANKS OF EXCAVATION TO PROTECT WORKMEN, BANKS, ADJACENT PAVING, STRUCTURES, AND UTILITIES TO MEET OSHA REQUIREMENTS. DESIGN OF TEMPORARY SUPPORT OF EXCAVATION IS THE RESPONSIBILITY OF THE CONTRACTOR.
16. EXCAVATE TO SUBGRADE ELEVATIONS REGARDLESS OF THE CHARACTER OF SURFACE AND SUBSURFACE CONDITIONS ENCOUNTERED. UNCLASSIFIED EXCAVATED MATERIALS MAY INCLUDE ROCK, SOIL MATERIALS, AND OBSTRUCTIONS. NO CHANGES IN THE CONTRACT SUM OR THE CONTRACT TIME WILL BE AUTHORIZED FOR ROCK EXCAVATION OR REMOVAL OF OBSTRUCTIONS.
17. PROOF-ROLL SUBGRADE BELOW THE BUILDING SLABS AND PAVEMENTS WITH FULLY LOADED TANDEM AXLE DUMP TRUCK OR RUBBER TIRED VEHICLE OF SIMILAR SIZE AND WEIGHT, TYPICALLY 9 TONS/AXLE, WHERE COHESIVE SOILS ARE ENCOUNTERED OR WITH A SMOOTH DRUMMED VIBRATORY ROLLER WHERE GRANULAR SOILS ARE PRESENT, DO NOT PROOF-ROLL WET OR SATURATED SUBGRADES AND PROOFROLL IN DRY WEATHER. PROOF ROLL IN PRESENCE OF PROJECT GEOTECHNICAL ENGINEER OR TECHNICIAN. SOILS THAT ARE OBSERVED TO RUT OR DEFLECT EXCESSIVELY UNDER THE MOVING LOAD (TYPICALLY >1") SHALL BE UNDERCUT AND REPLACED WITH PROPERLY COMPACTED ENGINEERED FILL. IN PAVEMENT AREAS WHERE UNDERCUTS ARE PERFORMED, THE EDGES OF THE OVEREXCAVATIONS SHALL BE FEATHERED INOT THE SURROUNDING SUITABLE SOIL SO THAT EDGE FAILURE OF THE OVEREXCAVATED AREA DOES NOT OCCUR.
18. DUE TO CLAYEY SOILS, IF UNDERCUTS OCCUR WITHIN PAVEMENT AREAS AND THEY ARE BACKFILLED WITH GRANULAR SOILS, THE BOTTOM OF THE OVEREXCAVATION SHALL BE SLOPED TO A DRAINTILE THAT IS IN KIND SLOPED TOWARD THE NEAREST STORM SEWER. MINIMUM SLOPES OF SUCH DRAINTILES SHALL BE 0.5%.
19. CONVENTIONAL DISKING AND AERATION TECHNIQUES SHALL BE USED TO DRY SOILS BEFORE PROOF ROLLING. ALLOT FOR PROPER DRYING TIME IN PROJECT SCHEDULE.
20. ENGINEERED FILL SHALL BE PLACED IN MAXIMUM LIFTS OF EIGHT INCHES OF LOOSE MATERIAL AND COMPACTED WITHIN 3% OF OPTIMUM SOIL MOISTURE CONTENT VALUE AND A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR TEST ASTM D1557. EACH LIFT OF COMPACTED ENGINEERED FILL SHALL BE OBSERVED AND TESTED BY A QUALIFIED GEOTECHNICAL ENGINEER OR TECHNICIAN.
21. EXISTING OLD FILL MATERIAL SHALL BE REMOVED BELOW FOOTINGS OR FOUNDATION SUPPORTING FILL. ENGINEERED FILL BELOW FOOTINGS SHOULD HAVE AN IN-PLACE DENSITY OF 95% OF THE MAXIMUM DRY DENSITY AND A MOISTURE CONTENT WITHIN 3% OF OPTIMUM AS DETERMINED BY ASTM D1557. ENGINEERED FILL BELOW FOOTINGS SHALL BE EVALUATED BY IN-FIELD DENSITY TESTS DURING CONSTRUCTION.
22. WHERE UNSUITABLE BEARING SOILS ARE ENCOUNTERED IN A FOOTING EXCAVATION, THE EXCAVATION SHALL BE DEEPENED TO COMPETENT BEARING SOIL AND THE FOOTING LOWERED OR AN OVEREXCAVATION AND BACKFILL PROCEDURE PERFORMED. OVEREXCAVATION AND BACKFILL TREATMENT REQUIRES WIDENING THE DEEPENED EXCAVATION IN ALL DIRECTIONS AT LEAST 6 INCHES BEYOND THE EDGE OF THE FOOTING FOR EACH 12 INCHES OF OVEREXCAVATION DEPTH. THE OVEREXCAVATION SHALL BE BACKFILLED UP TO FOOTING BASE ELEVATION IN MAXIMUM 8 INCH LOOSE LIFTS WITH SUITABLE GRANULAR FILL MATERIAL AND COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AND A MOISTURE CONTENT WITHIN 3% OF OPTIMUM AS DETERMINED BY ASTM D1557. SOILS AT FOUNDATION BEARING ELEVATION IN THE FOOTING EXCAVATIONS SHALL BE OBSERVED AND TESTED BY A QUALIFIED GEOTECHNICAL ENGINEER OR TECHNICIAN.
23. A MINIMUM OF FOUR INCHES OF DRAINAGE COURSE MAT SHALL BE PLACED BELOW BUILDING FLOOR SLABS. DRAINAGE COURSE SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION WITH RESPECT TO THE MODIFIED PROCTOR (ASTM D1557)
24. UTILITY TRENCHES FOR SEWER AND WATER SHALL CONFORM TO CLASS B COMPACTED TRENCH SECTION IN ACCORDANCE WITH FILE NO. 4 OF THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN, LATEST EDITION.
25. BACKFILL UTILITY TRENCHES IN 4 TO 6 INCH LOOSE LIFTS COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557. BACKFILL SHALL BE MOISTURE CONDITIONED TO BE WITH 3% OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D1557.
26. UTILITY BEDDING PLACEMENT: CONFORM TO SECTION 3.2.6 OF THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN, LATEST EDITION. BEDDING MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 90% COMPACTION WITH RESPECT TO THE MODIFIED PROCTOR (ASTM D1557).
27. COMPACTION TESTING OF UTILITY TRENCHES SHALL BE PERFORMED ONE FOR EVERY 200 CUBIC YARDS OF BACKFILL PLACED OR ONE FOR TEST PER 200 LINEAR FEET OF TRENCH FOR EACH LIFT, WHICHEVER IS LESS.
28. AGGREGATE BASE COURSE BENEATH PAVEMENTS SHALL BE PLACED AND COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN 3% OF OPTIMUM AS DETERMINED BY ASTM D1557. AGGREGATE BASE SHALL BE OBSERVED AND TESTED BY A QUALIFIED GEOTECHNICAL ENGINEER OR TECHNICIAN.
29. GRADING GENERAL: UNIFORMLY GRADE AREAS TO A SMOOTH SURFACE, FREE OF IRREGULAR SURFACE CHANGES. COMPLY WITH COMPACTION REQUIREMENTS AND GRADE TO CROSS SECTIONS, LINES, AND ELEVATIONS INDICATED. SLOPE GRADES TO DIRECT WATER AWAY FROM BUILDINGS AND TO PREVENT PONDING.
30. TESTING AGENCY: CONTRACTOR SHALL ENGAGE A QUALIFIED INDEPENDENT GEOTECHNICAL ENGINEERING TESTING AGENCY TO PERFORM FIELD QUALITY-CONTROL TESTING.
31. FOOTING SUBGRADE TESTING: EACH ISOLATED FOOTING SHALL INCLUDE AT LEAST ONE TEST PROBE. TEST PROBES SHALL BE PERFORMED EVERY 20 LINEAR FEET IN CONTINUOUS FOOTINGS.
32. BUILDING SLAB AREA TESTING: AT SUBGRADE AND AT EACH COMPACTED FILL AND BACKFILL LAYER, AT LEAST 1 TEST PER LIFT FOR EVERY 2500 SQ. FT. OR LESS OF BUILDING SLAB, BUT IN NO CASE FEWER THAN 3 TESTS.
33. PAVEMENT AREA TESTING: AT SUBGRADE AND AT EACH COMPACTED FILL AND BACKFILL LAYER, AT LEAST ONE TEST FOR EVERY LIFT FOR EVERY 2,500 SQUARE FEET OF PAVEMENT AREA, BUT IN NO CASES FEWER THAN 3 TESTS.
34. FOUNDATION WALL BACKFILL: AT EACH COMPACTED BACKFILL LAYER, AT LEAST 1 TEST PER LIFT FOR EACH 50 FEET OR LESS OF WALL LENGTH, BUT NO FEWER THAN 2 TESTS.
35. WHEN TESTING AGENCY REPORTS THAT SUBGRADES, FILLS, OR BACKFILLS HAVE NOT ACHIEVED DEGREE OF COMPACTION SPECIFIED, SCARIFY AND MOISTEN OR AERATE, OR REMOVE AND REPLACE SOIL TO DEPTH REQUIRED; RECOMPACT AND RETEST UNTIL SPECIFIED COMPACTION IS OBTAINED.
36. DISPOSAL: REMOVE SURPLUS SOIL AND WASTE MATERIAL, INCLUDING UNSATISFACTORY SOIL, TRASH, AND DEBRIS, AND LEGALLY DISPOSE OF IT OFF OWNER'S PROPERTY.

CONCRETE PAVING:

1. THE COMPOSITION, PLACING AND CONSTRUCTION OF CONCRETE PAVEMENTS SHALL BE IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF SECTIONS 415, 416, 501, 601, AND 602 OF THE STATE OF WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, LATEST EDITION (WISDOT STANDARD SPECIFICATIONS) AND LOCAL MUNICIPAL REQUIREMENTS AND SPECIFICATIONS.
2. CONTRACTOR SHALL PROVIDE PRODUCT DATA FOR EACH TYPE OF PRODUCT INDICATED - INCLUDE TECHNICAL DATA AND TESTED PHYSICAL AND PERFORMANCE PROPERTIES; JOB-MIX DESIGNS: CERTIFICATION THAT MIX MEETS OR EXCEEDS WISDOT STANDARD SPECIFICATIONS; AND MATERIAL CERTIFICATES CERTIFYING COMPLIANCE WITH WISDOT STANDARD SPECIFICATIONS.
3. MANUFACTURER QUALIFICATIONS: MANUFACTURER OF READY-MIXED CONCRETE PRODUCTS WHO COMPLIES WITH ASTM C 94/C 94M REQUIREMENTS FOR PRODUCTION FACILITIES AND EQUIPMENT AND APPROVED BY THE WISCONSIN DEPARTMENT OF TRANSPORTATION.
4. CONCRETE GRADE: GRADE A, GRADE A-2, OR A-FA CONFORMING TO SECTION 501.3.1.3 OF THE WISDOT STANDARD SPECIFICATIONS
5. AGGREGATES: CONFORM TO SECTION 501 OF THE WISDOT STANDARD SPECIFICATIONS. PROVIDE AGGREGATES FROM A SINGLE SOURCE.
6. WATER: ASTM C 94/C 94M AND SECTION 501 OF THE WISDOT STANDARD SPECIFICATIONS.
7. AIR-ENTRAINING ADMIXTURE: ASTM C 260 AND SECTION 501 OF THE WISDOT STANDARD SPECIFICATIONS.
8. CHEMICAL ADMIXTURES: PER SECTION 501 OF THE WISDOT STANDARD SPECIFICATIONS.
9. CURING MATERIALS IN ACCORDANCE WITH SECTION 415.3.12 OF THE WISDOT STANDARD SPECIFICATIONS.
10. EXPANSION JOINT MATERIAL: CONFORM TO SECTION 415.2.3 OF THE WISDOT STANDARD SPECIFICATIONS.
11. MEASURE, BATCH, AND MIX CONCRETE MATERIALS AND CONCRETE IN ACCORDANCE WITH SECTION 501 OF THE WISDOT STANDARD SPECIFICATIONS.
12. GENERAL EXECUTION: CONFORM TO SECTION 415 OF THE WISD

CITY OF SHEBOYGAN SPECIFICATIONS - WATER UTILITIES

PART 1 – GENERAL

1.01 SUMMARY

A. This Section identifies specifications on watermain and appurtenances installation.

B. Watermain and appurtenances installation shall comply with chapters and sections of the referenced documents in Part 2 of this section.

C. Watermain and appurtenances shall be installed using parts identified in this section.

D. Payment of this section should be covered by line items referenced in section 01 41 43.

E. All watermain and appurtenances shall be provided by Contractor.

PART 2 – PRODUCTS

2.01 Standard Specifications for Sewer and Water Construction in Wisconsin - 6 th Edition dated
December 22, 2003 with Addendum No. 1 dated December 22, 2004 and Addendum No. 2 dated April 22, 2008

2.02 PVC pipe, as noted on the plans or bid documents, shall conform to AWWA C-900 or C-905, latest revision, have the O.D. of ductile iron and have a pressure class rating of at least 150 psi and a dimension ratio of 18 or stronger.

2.04 The 12" ductile iron pipe and hydrant leads shall be ductile iron, class 52 minimum.

2.05 All fittings shall be ductile or cast iron. Minimum working pressure rating shall be 250 psi, except that for ductile iron fittings 24" and smaller, the minimum working pressure rating shall be 350 psi. Joints shall be mechanical, unless otherwise specified. All cast or ductile fittings shall be cement-lined on the interior flow way, unless epoxy-coated; per the standard specifications. Special fittings and accessories, not otherwise covered in the Contract Documents, shall conform substantially with other fitting requirements and be compatible with the existing and proposed pipe materials. Significant deviations, if any, shall be stated in writing to and approved by the Engineer.

2.06 Hydrants shall be:

A. Clow Eddy F-2640
B. Waterous WB-67B-250, with 16" upper standpipe section, or
C. Kennedy K81-D,

in conformance with the following specific requirements:

a. Traffic flange and frangible stem coupling construction required.
b. Two 2-1/2" Hose nozzles and one 4-1/2" Pumper nozzle, all with National Standard Fire Hose Coupling Screw Thread, required.
c. 5-1/4" nominal diameter of main valve opening.
d. Inlet connection shall be 6" mechanical joint with gland, rubber gasket, and high-strength, low-alloy bolts and nuts.
e. Operating nut and cap nuts shall be 1-1/2" pentagon measured from point to opposite flat (National Standard), and open left (counter-clockwise).
f. Caps shall be furnished with corrosion resistant metal chains and gaskets.
g. Pressure activated seals shall be the O-ring type.
h. Exposed exterior above proposed ground line shall have been cleaned and primed, as per AWWA, and finished with OSHA safety red enamel. (Repainting over finish coat of a different color is not acceptable.)
i. No drain, or drains shall be plugged with manufacturer approved plug.

2.07 Gate valves shall conform to the latest revision of AWWA C509 (resilient-seated) or AWWA C515 (ductile body resilient-seated). When gate valves are specified in sizes 4" through 12", they shall be of the resilient-seated type and in conformance with the following specific additional requirements:

a. Valves shall be intended for direct burial in an essentially vertical position in horizontal pipelines and be of the non-rising stem design, with O-ring stem seals, standard size (2") wrench nut, and opening left (counter-clockwise).
b. Valve ends shall be mechanical joint, unless otherwise specified, complete with standard joint accessories conforming to the latest revision of ANSI/AWWA C111/A21.11, except that the MJ bolts and nuts shall be the high-strength, low-alloy steel, and that gaskets shall not be lead-tipped.
c. Gland and bonnet bolting materials shall be 304 stainless steel, factory installed prior to testing.
d. Internal and external surfaces of the valve body and bonnet shall be epoxy coated, in accordance with the latest revision of AWWA C550.

2.08 12" valves and less shall be the resilient-seated type. In areas of less than 6' of cover, Engineer may require the butterfly type. Valves larger than 12" shall be butterfly, unless otherwise specified.

2.09 Unless otherwise specified, butterfly valves shall be of the mechanical joint body type, and have a pressure rating of not less than Class 150B. Valves shall open left (counter-clockwise).

2.10 Valve boxes shall be entirely of cast iron (Tyler Series, USA Made) in accordance with the requirements of this section. Box lids shall be drop type, with 1-1/2 inch skirt, marked "WATER", sized to fit properly.

2.11 Valve boxes for use with gate valves and air release assemblies shall be three-piece, Tyler Series 6860, with base section as required for valve size.

2.12 Top sections and risers which are less than 10" in length shall not be allowed.

2.13 Temporary water shall be constructed entirely with NSF 61 approved materials.

2.14 12 mil, polyethylene wrap is required on this project.

2.15 Where joint restraint is required per the plans or specifications, Contractor shall install retainer glands ("Megalug®" by EBAA Iron, Inc., or equal), manufactured harnesses, and/or locking push joint gaskets, and where not feasible install "Cor-Ten®" tie rods (quantity per joint per manufacturer's load table) and appurtenances ("Star™" Joint Restraint System, or equal.) If additional excavating is yet to be done and/or backfilling is not completed or well compacted, or for his desire, Contractor should install additional restraint, and may use blocking or buttressing, if per Engineer's approval.

2.16 Permanent manual air relief assemblies shall be of 1" soft copper tube, with all fittings of brass, and water valve box and base of cast iron. Top end of copper tube shall be fitted with a brass garden hose thread fitting w/brass garden hose cap (See Exhibit C.) A saddle and 1" ball-style corporation stop (w/flared outlet), and a 90 degree swivel (quarter bend, i.e. FCTxFC/Ford L04-44S, or equal) is to be furnished, and all installed by Contractor. Bend should attach to corp to keep installation as deep as possible. Brass nipples and pipe are not allowed. (A union may be placed near the top of the discharge tube for temporary lowering to trim road gravel prior to paving.)

2.17 Mechanical joint valves shall be complete with standard joint accessories conforming to the latest revision of ANSI/AWWA C111/A21.11, except that the mechanical-joint bolts and nuts shall be the high-strength, low-alloy steel, and that gaskets shall not be lead-tipped. Bolting materials shall be coated with a non-sticky, non-brittle petroleum asphaltic coating by Contractor prior to installation, if not already coated by supplier with a similar corrosion-inhibiting material.

2.18 Water Main and Sampling Procedure, found in the appendix.

PART 3 – EXECUTION

3.01 Temporary Water System

A. The Contractor shall design, furnish, install, disinfect, and maintain an external temporary water supply system capable of utilizing water from the public water distribution system to provide water to each property along the project. In cases where property is multi-occupancy, the Contractor shall design and coordinate with the property owners, a connection to provide water to all parties.
B. The system shall be designed to provide properties safe water with minimum pressure of 35 psi and flow of 10 gpm, 24 hours a day, 7 days a week, with minimal disruptions and without the use of a pump. The system shall utilize a manifold with individual services to each property.

C. The temporary manifold shall be live tapped to the existing water main for supply and utilize back flow prevention devices at or near the point of connection to the municipal distribution system. All temporary water shall be trenched and buried under the road when crossing streets and/or other areas as necessary to accommodate traffic.

D. Layout and design of temporary water supply system shall be submitted for review at least one week prior to preconstruction meeting. All temporary water systems shall pass Sheboygan Water Utility Bacteriological Testing Procedure prior to being opened to the distribution system and put into service. The temporary water supply shall be actively feeding each property prior to water main or service work occurring fronting the property.

3.02 Excavations must be conducted in accordance with OSHA Standard CFR 1926.60.
General requirements include:

A. A safe means of egress must be in all trench excavations that are 4 feet or more in depth.

B. Daily inspections of trench, adjacent areas, and protective systems must be conducted by the Contractor's designated Competent Person, as defined in Preamble 29 CFR 1926.650-652.

C. Contractor must provide safe trenches. Utility personnel will refuse to enter trenches not in conformance with OSHA standards.

D. All trenches shall be backfilled completely, as soon as practical, and maintained to accommodate local traffic.

E. Open excavations must be barricaded off and completely covered with ¾" plywood if left unattended.

F. Contractor to use an OSHA compliant shield or trench box when completing work. The Water Utility reserves the right to stop work due to unsafe working conditions.

3.03 General Construction

A. Perform construction within existing R/Ws, and easements and/or construction licenses shown on the plan. Any construction activity (excavating, stockpiling, tree removal, etc.) on private property beyond the above-stated limits shall only be with Contractor's receiving prior approval from the corresponding jurisdiction or private property owner.

B. Underground utilities and structures that might conflict with the location of proposed facilities and require adjustments to the design shall be exposed adequately and far enough in advance of construction, to allow Engineer reasonable time to check for conflicts and make the necessary adjustments, without additional compensation for delays.

C. Provide adequate notice (a minimum of 3 working days or more) to utility owners of facilities such as poles and anchors that may need to be supported or relocated by them, prior to excavating, and accommodate such needs.

D. Trees and bushes, located within the R/Ws and easements secured for the work shall be saved if possible unless being removed by City or otherwise specified, but if damaged, shall be trimmed if suitable to Engineer, otherwise removed, and if removed, need not be replaced. Cost of clearing and grubbing shall be incidental to the Contract.

E. Granular backfill conforming to Section 8.43.4 of the Standard Specifications shall be used for backfill in all areas shown on the plans, and in areas where excavated material is deemed not suitable by Engineer.

F. Wherever excavated material is deemed suitable by Engineer for use in place of required granular backfill, a credit of $10.00 per cubic yard shall be taken by the Utility for each in place cubic yard of such material required, based on an average width of trench of pipe O.D. plus 36".

G. Crushed road gravel conforming to Section 8.43.7 shall be used for the top 12" of backfill under and within 18" horizontally of existing pavements or proposed pavements, curbs, parking lots, driveways, and other areas when noted on the plans.

H. All backfill, whether granular or excavated, shall be consolidated by mechanical means, in compacted lifts of 18" maximum; 12" for clay. Consolidate all backfill to minimum 95% maximum density as determined by ASTM D698, (Standard Proctor).

I. Utility shall, at it's expense, contract with an independent firm to perform compaction tests and sieve analysis on granular backfill. Four compaction tests shall be taken within the first 400 feet of water main trench, and then two for each additional 400 feet of trench or fraction thereof, at locations determined by the Engineer. One sieve analysis shall be performed for every 1000 feet or fraction thereof. All costs to accommodate testing shall be incidental to the respective work. All tests shall be at depths between 2' and 4' below finished grade, with Contractor to re-excavate and properly backfill and compact each test site. All costs to accommodate testing shall be incidental to the respective work.

J. Unless otherwise noted on the plans, at reducers, the transition in payment for lineal foot of water main and/or hydrant leads shall be made at the center line of reducer, with half of the laying length paid at the larger diameter and the other half paid at the smaller diameter, when such bid items exist.

K. Contractor shall use care when handling and backfilling hydrants so as not to damage the paint, especially when backfilling with stone. Hydrants shall also be kept clean, and accessible once they are put into service. Utility will provide a yellow "Hydrant Out of Service Marker" for each hydrant, unless bagged, until the hydrant is put into service.

L. Contractor shall salvage all mechanical joint valves and fittings, hydrants and valve boxes in immediate area of tie-in to existing mains, or as otherwise noted on the plans; including sections of ductile iron pipe and iron valve boxes and covers, if in reasonably good shape, for pick up by Utility. Any pipe, if being abandoned, shall be left in place and the ends bulk-headed. Any such materials removed in the course of the work, but not being salvaged by Utility, are to be properly disposed of, off site, by Contractor. Costs of removal and abandonment shall be incidental to water main construction.

M. Insulating boards (extruded polystyrene) shall be used in lieu of insulating concrete unless specifically approved in writing by Engineer. They shall be placed in minimum dimensions of 2' wide x 4' long x 1" thick, with no gaps between adjacent sheets. They shall be centered over and to a width extending at least 12" beyond each side of pipe. See also File No. 48. Thickness shall be as specified by Engineer. Generally it shall be figured as at least 2" thick for every foot or fraction of a foot that the existing (or future, if lower) cover from finished grade is less than 6' (5.5' for 8" thru 16" and 5' for water lines greater than 16" in diameter). In extreme cases, typically where the cover will be less than 4.5', the sides of the water line shall also be insulated (typically 2" thick), from the flat insulation down to a point even with the bottom of the water line. Insulation is required above and on the near side of water mains and services whenever the water line is within close proximity of a catch basin, manhole, culvert, large storm sewer or other object of susceptibility for freezing, and as otherwise shown on the plans. Care shall be taken to avoid scratching the water pipe with the backhoe bucket. If scratched, it shall be repaired per 4.4.4. These requirements shall also be applied to existing water main when and where Contractor is explicitly required to insulate.

3.03 Incidental Work: Work specified in this subparagraph is incidental work. The following items include cost in unit price bid items identified, but not limited to this or other sections.

A. Excavation:

a. Include cost of sawing and breaking pavement in unit prices bid for water main.
b. Include cost of excavation of soils for installation of water main and associated appurtenances in unit prices bid for water main.
c. Include cost of sheeting, shoring and bracing materials, including installation and removal in unit prices bid for water main.

B. Include cost of dewatering excavation in unit prices bid for water main.
C. Include costs for disposal of material in unit prices bid for water main.

D. Include costs for pipe bedding, pipe cover, trench backfill, and road bedding in unit prices bid for water main.

E. Include costs of insulation for water main and appurtenances, as indicated in plans and as directed by engineer, in unit prices bid for water main.

F. Include costs of all materials, testing and all work associated with installation of tracer wire in unit prices bid for water main.

G. Include all associated costs for installing and maintaining the trench and trench surface until the dates determined elsewhere in the contract in unit prices bid for water main.

H. Pavement, sidewalk, driveways and curb and gutter:

a. Include cost of replacing any damaged or removed concrete pavement, sidewalk, driveways, curb and gutter in the respective unit prices bid for water main.

I. Thrust blocking and restraining water main:

a. Include all associated costs of thrust blocking and water main restraint in unit prices bid for water main.

J. Polyethylene wrap:

a. Include costs of 12 mil polyethylene wrap for all ductile iron pipe, fittings, valve boxes, hydrants, services and other ductile iron and cast iron appurtenances in unit prices bid for water main.

K. Tracer Wire:

a. Include costs of all materials, testing and all work associated with installation of tracer wire in unit prices bid for water main.

L. Erosion and Sediment Control:

a. Include costs of erosion and sediment control in unit prices bid for water main.
b. Include costs of dust control and sweeping roadway in unit prices bid for water main.

M. Tree Clearing and Grubbing:

a. Include cost for clearing or grubbing in unit prices bid for water main.
b. Replacement trees or shrubs and new trees and shrubs shall be included in unit prices bid for water main.

N. Traffic Control:

a. Include all associated costs to design, implement and maintain traffic control items in lump sum price bid for traffic control.

O. Utility and Lateral Crossings:

a. Include cost of utility company to relocate or reinforce poles, ties or anchors, and expose existing utilities in unit prices bid for water main and services.
b. Include cost of locating and excavating, as needed, existing utilities to confirm their location and elevation in order to plan for avoiding interferences in unit prices bid for water main construction. Laterals damaged due to construction activities shall be restored and repaired at the cost of the contractor.
c. Design of pipe support and supporting existing sewers, water main and all other utilities and laterals shall be included in unit prices bid for water main.

P. Removal and abandonment of existing water main, hydrants and associated appurtenances shall be included in the unit prices of water main.

Q. Trench Maintenance:

a. Include all associated costs for installing and maintaining the trench and trench surface until the dates determined elsewhere in the contract in unit prices bid for water main.

R. Water Service Reconnect:

a. Include all associated costs to furnish, install and reconnect existing copper service, where plans indicate, in unit prices bid for water service reconnect. Include all associated material, labor and equipment for excavation, backfill and pavement restoration required for service reconnect in unit prices bid for copper service reconnect.

S. Temporary External Water Supply System:

a. Include all associated costs to design, furnish, install, disinfect and maintain external water supply system in unit prices bid for Temporary External Water Supply System.
b. Include all costs to provide a standby contact, available 24 hours a day for emergency situations in unit prices bid for Temporary External Water Supply System.

3.04 Bid price for "reconnect existing water service" shall be the price paid for each existing copper service (of a particular size) that is being reconnected from the main being abandoned to the new main being installed, when such bid item exists.

3.05 Tracer wire shall be installed continuously, along the entire length of all non-metallic pipelines) being installed, with surface termination points installed near each end of the tracer wire, and at intermediate points, as required in the Standard Specs. Tape at intervals less than 10' or continuously, if necessary, to maintain its position on top of the pipe. Final testing of the tracer wire will be performed by the Utility; discontinuities shall be repaired by the Contractor.

3.06 Water Main Construction
A. Additional crushed stone required for trench stabilization beneath the first 3" will be paid for according to the bid item for 1-1/2" foundation stone. Bid price shall include cost of furnishing and placing material, as well as costs of additional excavation, sheathing, shoring, dewatering, and disposal of excess material attributable to this item. In order to receive compensation for this item, authorization shall be received from Engineer whenever and wherever bottom is unsuitable for pipe support. Payment shall be based on compacted volume computed by multiplying actual depth not to exceed the amount authorized, commencing 3" below bedding material, by average width not to exceed O.D. of pipe plus 24", by length equal to length of trench stabilized, as witnessed by Engineer.

B. Bedding and cover material shall be sand conforming to Sec. 8.43.2(c), as shown on File #36 in the Standard Specifications, except that cover material shall extend to 12" over pipe.

C. Wherever excavated material is deemed suitable by Engineer for bedding and cover material, a credit of $10.00 per cubic yard shall be taken by the Utility for each in place cubic yard of cover and bedding material required, based on an average width of trench of pipe O.D. plus 24".

D. Valves, hydrants, and special fittings may be supported in vertical positions on solid concrete block or concrete support. If wood blocking and shims are used, they shall be of good quality hardwood. Loose and soft ground shall be removed and replaced with stone and blocking of size sufficient to provide stable and unsettling support.

E. Solid concrete block and/or hardwood buttressing of equivalent dimensions shall be substituted for concrete behind hydrants and beyond tees, crosses and dead-ends which may be extended in the future, provided they can be placed against firm, undisturbed trench walls, and perpendicular to direction of thrust. If adequate support against firm, undisturbed earth cannot be obtained for buttressing, submit thrust restraint design to Engineer for approval.

F. All unwrapped joint restraint rod & clamps shall be thoroughly coated for corrosion protection with an approved bituminous protective coating, per Section 4.9.3.

3.07 Polywrapping

A. All installed iron piping shall be wrapped; including valves, valve boxes, fittings and hydrant. Polywrapping shall be incidental to the cost of water main construction. Polywrapping of service connections shall be incidental to the price bid for that work. Repairs to damaged polyethylene must be made by covering defect with polyethylene and/or approved tape; duct tape alone is not allowed. Any damage to the coating on existing iron water lines remaining in service must be repaired with an approved bituminous protective coating.

3.08 Air Relief Assemblies

A. For manual air relief assemblies the standard cast iron box must be blocked so that it does not rest directly on water main or copper tube. A curb stop and box, per specs, shall be installed in the water valve box. The stop box lid shall be replaced with a snug fitting plastic cap instead. A (90 degree) swivel quarter bend (i.e. FCTxFC/Ford L04-44S or equal) shall be installed at outlet of the 1" ball-style curb stop (i.e. flared outlet Ford B22-444M, B22-444SWM, or equal) so to eliminate a sweeping loop in the copper tube. Bend should attach to stop to keep within valve base. A "stop & waste" style curb stop is preferred. In lieu of a "stop & waste" style, a small weep hole shall be drilled at the base of the riser. Existing and proposed depth of cover at curb stop valve shall be at least 5'-6". If necessary, set the assembly alongside the main, and insulate (per section 4.17.2) the portion between corp and curb stop which has less than 5'-6" of existing and/or proposed cover. Cost of insulation shall be incidental to air relief assembly.

3.09 Hydrostatic Testing

A. A combined pressure and leak test typically will be allowed. It shall be performed by Contractor and witnessed by Utility, during normal working hours, with no charge to Contractor for successful tests (if any fail, they will be charged at regular rates) for such witnessing.

B. Though a test section may include more than one segment, any and all intermediate valves shall be at least momentarily checked to see that they hold system pressure, including hydrant lead valves. When practical, they shall be checked for 100% shutoff in each direction.

C. The pressure & leak test gauge shall be at least 2.5" diameter with a range of no more than 200 psi or 4" diameter with a range of no more than 300 psi. The gauge shall read in increments not to exceed 5 psi in the testing range.

D. The duration of the "final" pressure test shall be two hours. The duration of the "final" leakage test, if needed, shall be two hours.

3.10 Bacteriological Testing

A. The Contractor shall provide a hydrant nozzle valve for each hydrant to facilitate flushing, if desired. Temporary sample cocks and fittings, when necessary, shall be furnished, installed and removed by Contractor, and main plugged, in presence of Engineer, with watertight cc threaded brass plugs, or suitable plug on outlet of corp when attached to a saddle, at completion of sampling. (For an example of a flushing & sampling assembly, see Detail on Plan.)

B. All work associated with flushing and sampling must be performed in accordance with "Water Main Testing & Sampling Procedures," found within the appendix.

C. Contractor shall provide chlorinating materials and equipment. Permatex No. 1 is not allowed. Tablets, if used, shall be attached with USDA approved food grade adhesives, such as Permatex Form-a-gasket No. 2 and Permatex Clear RTV Silicone Adhesive Sealant.

D. When flushing mains, highly chlorinated water shall be thoroughly de-chlorinated, by approved methods. New mains shall be flushed, when possible, at a min. velocity of 2.5 ft./sec., prior to sampling and being put into service.

WATER SERVICE CONNECTIONS

PART 1 – GENERAL

1.01 SUMMARY

F. This Section identifies specifications on excavation, and water service installation.

G. Water service connections shall comply with chapters and sections of the referenced documents in Part 2 of this section.

H. Water service connections shall be installed using parts identified in this section.

I. Payment of this section should be covered by line items referenced in section 01 41 43.

J. The saddles, taps, and corporation stops shall be provided by Contractor.

PART 2 – PRODUCTS

2.01 Standard Specifications for Sewer and Water Construction in Wisconsin - 6th Edition dated December 22, 2003 with Addendum No. 1 dated December 22, 2004 and Addendum No. 2 dated April 22, 2008

2.02 Minneapolis pattern curb stop boxes shall be used for all installations, with a minimum inside diameter of 1.25". (Shut off rods are not to be furnished.) Length shall be such that there is at least 4" of telescopic adjustment in either direction. (NOTE: When using standard 7' boxes, the service will have to be about 6 ½' deep to allow adjustment both up and down.) Boxes shall be of iron and/or steel composition, the upper section of steel. Lids shall be included, with standard 1-1/4" pentagon brass plug, and be of cast iron with the marking "water". Pre-approved service boxes are

A. A.Y. McDonald #5614 w/1514L lid, Ford #EM2, or Mueller equal; with appropriately sized base to fit the curb stop valve thread.

2.03 Curb stops that are cast into sidewalks shall be Neenah R-7506C style boxes, with a cover marking "water".

2.04 Inlet, ball & outlet sizes of corps are to be of the same size, and no smaller than the service size required. Outlets shall be "straight" for service connections. Outlets may be copper flared. Compression joints shall provide high pull-out resistance. Corporations (and saddles where used) shall provide electrical continuity from tube to main. Ball style corps are required; plug style are not allowed.

2.05 Saddles shall be appropriately sized to fit the pipe. Saddles with iron bodies in particular must have a close range for use on PVC. Outlets shall be AWWA thread.

2.06 Pre-approved models of 1" curb stops (compression inlet-C.T.S. x compression outlet-C.T.S.) are:

A. A.Y. McDonald #6104Q or #6104-22,
B. Ford #B44-444M-Q, and
C. Mueller #H-15155 and #B-25155.

2.07 Water service installation, repair or replacement piping shall be either type "K" soft copper, PVC, PE or ductile iron, class 52 min.

PART 3 – EXECUTION

3.01 Materials Identification

A. Contractor is responsible for line tracing the water services prior to construction or road sawing. Water services are private infrastructure, and the Water Utility cannot guarantee the exact locations. Any concrete that needs to be replaced due to incorrect line tracing is incidental to the bid for water service replacement, water main to curbstop.

B. Contractor is responsible for identifying service materials prior to any concrete disruption in the street or the property. Existing copper or plastic services should not be replaced as part of this project.

3.02 Excavations must be conducted in accordance with OSHA Standard CFR 1926.60.
General requirements include:

A. A safe means of egress must be in all trench excavations that are 4 feet or more in depth.

B. Daily inspections of trench, adjacent areas, and protective systems must be conducted by the Contractor's designated Competent Person, as defined in Preamble 29 CFR 1926.650-652.

C. Contractor must provide safe trenches. Utility personnel will refuse to enter trenches not in conformance with OSHA standards.

D. All trenches shall be backfilled completely, as soon as practical, and maintained to accommodate local traffic.

E. Open excavations must be barricaded off and completely covered with ¾" plywood if left unattended.

F. Contractor to use an OSHA compliant shield or trench box when completing work. The Water Utility reserves the right to stop work due to unsafe working conditions.

3.02 Incidental Work: Work specified in this subparagraph is incidental work. The following items include cost in unit price bid items identified, but not limited to this or other sections.

A. Excavation:

a. Include cost of sawing and breaking pavement in unit prices bid for water services.
b. Include cost of excavation of soils for installation of water services and associated appurtenances in unit prices bid for water services.
c. Include cost of sheeting, shoring and bracing materials, including installation and removal in unit prices bid for water services.

B. Include cost of dewatering excavation in unit prices bid for water services.
C. Include costs for disposal of material in unit prices bid for water services.

D. Include costs for pipe bedding, pipe cover, trench backfill, and road bedding in unit prices bid for water services.

E. Include costs of insulation for water main and appurtenances, as indicated in plans and as directed by engineer, in unit prices bid for water services.

F. Include costs of all materials, testing and all work associated with installation of tracer wire in unit prices of water services.

G. Removal and abandonment of existing water services associated appurtenances shall be included in the unit prices of water services.

H. Include all associated costs for installing and maintaining the trench and trench surface until the dates determined elsewhere in the contract in unit prices bid for water services.

I. New Water Service Connections:

a. Include all associated costs to furnish and install materials required to connect 1" copper or plastic services as contract documents indicate, in unit prices bid for water services.
b. Include costs to locate existing service material prior to connection in unit prices for water service connections.

3.03 Tracer wire shall be installed continuously, along the entire length of all non-metallic pipelines) being installed, with surface termination points installed near each end of the tracer wire, and at intermediate points, as required in the Standard Specs. Tape at intervals less than 10' or continuously, if necessary, to maintain its position on top of the pipe.

3.04 Water services and curb stop boxes shall be placed where and at the elevation designated by the Water Utility and/or the City DPW or Plumbing Inspector, and all materials furnished and installed in accordance with the City of Sheboygan plumbing code.

3.05 All ends on copper tubing shall be reamed to remove any burrs. All service work shall be inspected for proper use of materials and workmanship, adequate depth and location, visually for leaks, measured and recorded, all by the Utility's and/or City's inspector, prior to backfilling.

3.06 Any water service damaged by the Contractor shall be properly repaired at the Contractor's expense. This work shall meet all State and local plumbing codes.

3.07 Contractor should relocate curbstop boxes that fall within driveways, curbing, sidewalks or other concrete structures.

3.08 Residential Meter Settings- The following specifications provide consistent standards for water meter settings in the City of Sheboygan. Based on information obtained from American Water Works Association (AWWA) standards, Badger Meter Inc., and Master Meter Inc., these specifications help to ensure the meter's accuracy and the safety of workers who must maintain meters.
A. Horns: Meter horns are required on all residential installations, including single and multiple dwelling units. Horns must not have built-in backflow prevention. Meter horns are not required on existing installations unless the entire meter setting must be rebuilt. Meter horns have a 7 1/2" inch laying length.

B. Valves: All meter settings must have two valves (inlet and outlet). Existing installations with only a functional inlet valve are acceptable. If an existing setting has two valves in need of replacement, then the setting will need to be rebuilt, including the addition of a horn. Outlet valves shall not be installed closer than 12" from the meter horn flanges. Multiple dwelling and commercial settings must have a lockable in-valve, minimum ¾", plumbed directly to the horn. Valves with removable handles are not acceptable.

C. Support: All meter horns shall be full pipe clamped to the wall or floor within 6" inches of the inlet and outlet of the horn. All support hardware must be compatible material to reduce the potential for galvanic action with the piping. Support hardware cannot distort, cut, or abrade the piping and must be sufficiently rigid to support the piping and its contents. Radiator clamps and pipe rests are not acceptable means of support.

D. Clearance: All meter settings shall maintain 18" of unobstructed space from the floor to center pipe of the meter. The center pipe of the meter shall be no higher than 48" from the floor. A minimum of 12" of unobstructed space must be maintained above the meter lens.

E. If multiple meters are stacked, 24" of unobstructed space shall be maintained between the bottom meter, center of pipe and the top meter, center of pipe. If multiple meters are parallel or in a row, 6" of space must be maintained between each meter horn. 36" of unobstructed space must be maintained in front of the meter setting.

F. Meter settings that currently comply with Sheboygan Water Utility specifications need not be replaced.

3.09 Grounding
A. Contractor to verify the need for grounding before performing that work on a property. Grounding to be completed at the time of water service replacement as to minimize inconvenience to the customers, and to ensure that the property is always properly grounded during construction.

3.10 Restoration of water to the properties is required after the service replacement has occurred. Water restoration includes scheduling access to the property and scheduling a meter installation with the Water Utility at least 24 hours in advance. The curbstop should be turned on and flushing of the service should be completed by the contractor prior to meter installation.

CITY SPECIFICATIONS

REVISION DESCRIPTION	DATE	REV. BY

ACE BUILDING SERVICE
OUR REPUTATION IS OUR FOUNDATION
P.O. BOX 1626 • 3510 SOUTH 26TH STREET • MANITOWOC, WISCONSIN • 54221-1626
PHONE: 920-682-8105 • FAX: 920-682-7700 • WWW.ACEBUILDINGSERVICE.COM

PROJECT INFORMATION:
HTT WEST EXPANSION
1828 OAKLAND AVENUE
SHEBOYGAN, WI 53081

SHEET INFORMATION
A.C.E. JOB NO.
DATE: 12/08/2023
DRAWN BY: AKK
SCALE: NTS
SHEET
C501