

**PUMP STATION #7 SITE PLAN**  
ADDRESS: 1633 S. LINCOLN RD. (MCDONALD DR.)  
SCALE: NOT TO SCALE

**CONSTRUCTION SCHEDULE NOTES**

1. A CONSTRUCTION SCHEDULE AND OPERATION PLAN SHALL BE SUBMITTED TO THE ENGINEER/OWNER FOR APPROVAL PRIOR TO BEGINNING WORK. ALL OPERATIONS OF EXISTING EQUIPMENT INCLUDING VALVE TURNING SHALL BE COMPLETED BY DPW STAFF.
2. CONTRACTOR SHALL MAINTAIN ALL INCOMING EXISTING FLOWS IN TO WET WELL. CONTRACTOR SHALL ANTICIPATE TO PUMP AND HAUL SEWAGE FROM THE WET WELL TO FACILITATE WORK ON BYPASS MANHOLE TO BE INCLUDED IN THE COST OF THE PROJECT. CONTRACTOR SHALL COORDINATE WITH DPW FOR NEAREST DOWNSTREAM MANHOLE TO DISCHARGE INTO. CONTRACTOR SHALL COORDINATE WITH THE DPW TO SHUT OFF PUMPS AND VALVES IN PUMP CHAMBER TO ISOLATE. BYPASS PUMPING MAY BE REQUIRED. STATION EXPERIENCES PEAK HOUR FLOWS OF UP TO 220 GPM AND HAS AN AVAILABLE HOLDING CAPACITY OF APPROXIMATELY 6,500 GALLONS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING.
3. PUMP STATION #7 SHARES A COMMON FORCE MAIN WITH ANOTHER PUMP STATION DOWNSTREAM. THERE ARE NO MEANS TO ISOLATE. CONTRACTOR TO INSTALL THE DISCHARGE VALVE IN THE BY-PASS MANHOLE TO PROVIDE THIS ISOLATION. CONTRACTOR TO ANTICIPATE ONE (1) HOUR HOLDING TIME IN THE DOWNSTREAM PUMP STATION TO ACCOMPLISH. IF NOT FEASIBLE, CONTRACTOR TO PROVIDE PUMP/HAUL SERVICES AS NEEDED. ALL WORK TO BE INCLUDED IN THE COST OF THE PROJECT.

**GENERAL NOTES**

1. THE EXISTING INFORMATION PROVIDED ARE SCANNED IMAGES OF THE ORIGINAL DESIGN DRAWINGS AND ARE FOR REFERENCE ONLY. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY PRIOR TO BEGINNING WORK.
2. SPECIAL CARE SHALL BE TAKEN IN EXCAVATING IN THE PROXIMITY OF ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL SECURE AND PROTECT THE APPROPRIATE UTILITY COMPANY IN LOCATING ITS LINES. THE CONTRACTOR SHALL ALSO: PROVIDE SUPPORT FOR ANY UTILITY WITHIN THE EXCAVATION, PROVIDE PROPER COMPACTION UNDER ANY UNDERMINED UTILITY STRUCTURE AND, IF NECESSARY, INSTALL TEMPORARY SHEETING OR USE A TRENCH BOX TO MINIMIZE THE EXCAVATION. THE CONTRACTOR SHALL PROTECT AND SAVE HARMLESS FROM DAMAGE ALL UTILITIES, WHETHER PRIVATELY OR PUBLICLY OWNED, ABOVE OR BELOW GROUND SURFACE, WHICH MAY BE ENCOUNTERED DURING CONSTRUCTION, AT NO ADDITIONAL COST TO THE OWNER.
3. THE LOCATION OF EXISTING PUBLIC UTILITIES AND UNDERGROUND STRUCTURES SUCH AS PIPE LINES, ELECTRIC CONDUITS, SEWERS AND WATER LINES, OF RECORD ARE SHOWN ON THE PLANS. THE INFORMATION SHOWN IS BELIEVED TO BE REASONABLY CORRECT AND COMPLETE. HOWEVER, NEITHER THE CORRECTNESS NOR THE COMPLETENESS OF SUCH INFORMATION IS GUARANTEED. PRIOR TO THE START OF ANY OPERATIONS IN THE VICINITY OF ANY UTILITIES, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES AND MISS DIG AND REQUEST THAT THEY STAKE OUT THE LOCATIONS OF THE UTILITIES IN QUESTION. THE CONTRACTOR SHALL COORDINATE THE RELOCATION OF ANY UTILITIES WITH THE UTILITY PROVIDOR. COST OF REPAIR FOR ANY DAMAGED UTILITY LINES THAT IS PROPERLY STAKED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS AND REGULATIONS GOVERNING THE FURNISHING AND USE OF SAFEGUARDS, SAFETY DEVICES AND PROTECTION EQUIPMENT. THE CONTRACTOR SHALL TAKE ANY NECESSARY PRECAUTIONS TO PROTECT THE LIFE AND HEALTH OF EMPLOYEES AND THE PUBLIC IN THE PERFORMANCE OF THE WORK.
5. FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH MICHIGAN ACT 1974, THE CONTRACTOR SHALL DIAL 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE PART OF THE "MISS DIG" ALERT SYSTEM.
6. EXISTING PROPERTY CORNERS ARE IDENTIFIED ON THE PLANS. IF A PROPERTY CORNER IS DISTURBED DURING CONSTRUCTION IT SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE BY A PROFESSIONAL LAND SURVEYOR.
7. TRAFFIC SHALL BE MAINTAINED AT ALL TIMES WITH SIGNAGE TO COMPLY TO COMPLY TO MMUTCD.
8. CONTRACTOR SHALL RESTORE ALL LAWNS, LANDSCAPE PLANTINGS, SIDEWALKS, COMMERCIAL SIGNS, ETC., AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.
9. ALL WORK SHALL TAKE PLACE WITHIN THE CONFINES OF THE EXISTING RIGHT-OF-WAY/EASEMENTS. IF ADDITIONAL ROOM IS NECESSARY, CONTRACTOR SHALL PROVIDE WRITTEN PERMISSION FROM ADJACENT PROPERTY OWNERS TO TOWNSHIP & ENGINEER.
10. CONTRACTOR TO REMOVE FENCING ON THE EAST SIDE OF PUMP STATION AS NECESSARY TO ACCOMMODATE ACCESS AND CONSTRUCTION. CONTRACTOR TO REINSTALL ONCE CONSTRUCTION IS COMPLETED.

**BY-PASS MANHOLE DEMOLITION/CONSTRUCTION NOTES**

1. CONTRACTOR SHALL PROPERLY DISPOSE OF REMOVED MATERIALS OR SALVAGE AS DIRECTED BY THE D.P.W.
2. CONTRACTOR SHALL FIELD VERIFY THE PROPOSED IMPROVEMENTS WILL PROPERLY FIT THE EXISTING CONFINES PRIOR TO BEGINNING WORK. IF MODIFICATIONS ARE NECESSARY CONTRACTOR SHALL DO SO AT NO ADDITIONAL COST TO THE PROJECT.
3. ALL PIPING TO BE DUCTILE IRON COMPLIANT WITH SPECIFICATIONS.
4. THE EXISTING 6" FORCE MAIN MATERIAL IS UNKNOWN. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY. COSTS FOR EXPLORATION AND MODIFICATIONS TO FITTINGS AND INSTALLATION TO BE INCLUDED WITH COST OF PROJECT.
5. UPON COMPLETION OF DEMOLITION WORK CONTRACTOR SHALL REMOVE DEBRIS/ROOTS, PATCH EXISTING HOLES WITH GROUT/CEMENT, CLEAN AND WATERPROOF AS FOLLOWS:
  - THE INTERIOR SURFACE OF THE BYPASS MANHOLE SHALL BE THOROUGHLY COVERED WITH TNEEC SERIES 435 PERMA-GLAZE OR ENGINEER APPROVED EQUAL APPLIED AT 60-80 MILS. THE WATERPROOFING SYSTEM SHALL BE APPLIED AND ALLOWED TO DRY IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS. ALL STEPS, LIDS, FRAMES AND CASTINGS AND SEWER PIPE ENTERING OR LEAVING THE WET WELL SHALL BE PROTECTED DURING APPLICATION TO PREVENT THEIR BEING COATED.
  - IF ANY LEAKS IN THE BYPASS MANHOLE ARE DETECTED TWENTY-FOUR (24) HOURS AFTER APPLICATION OF THE FIRST COAT OF THE WATERPROOFING SYSTEM, THEY SHALL BE SEALED BY APPLICATION OF A QUICK-SET SEALER. THIS SEALER SHALL BE A MIXTURE OF PORTLAND CEMENT - TYPE ONE AND IPANEX R, "WATERPLUG" OR EQUAL. THE QUICK-SET SEALER SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS. AFTER THE PATCHED AREAS DRY, THEY SHALL BE COVERED WITH ANOTHER COAT OF THE WATERPROOFING AND ALLOWED TO DRY. IF ANY LEAKS ARE APPARENT AFTER THAT TIME, THE CONTRACTOR SHALL REPEAT THEM. THE ABOVE STEPS SHALL BE REPEATED UNTIL ALL LEAKS ARE SEALED.
  - AFTER ALL LEAKS ARE STOPPED AND THERE ARE NO LEAKS APPARENT AFTER TWENTY-FOUR (24) HOURS UPON APPLICATION OF THE FIRST COAT OF THE WATERPROOFING SYSTEM OR TWELVE (12) HOURS AFTER APPLICATION OF A PATCH, THE CONTRACTOR SHALL APPLY OVER THE DRY SURFACE A FINISH COAT.

**SOIL EROSION AND STORM WATER CONTROL NOTES**

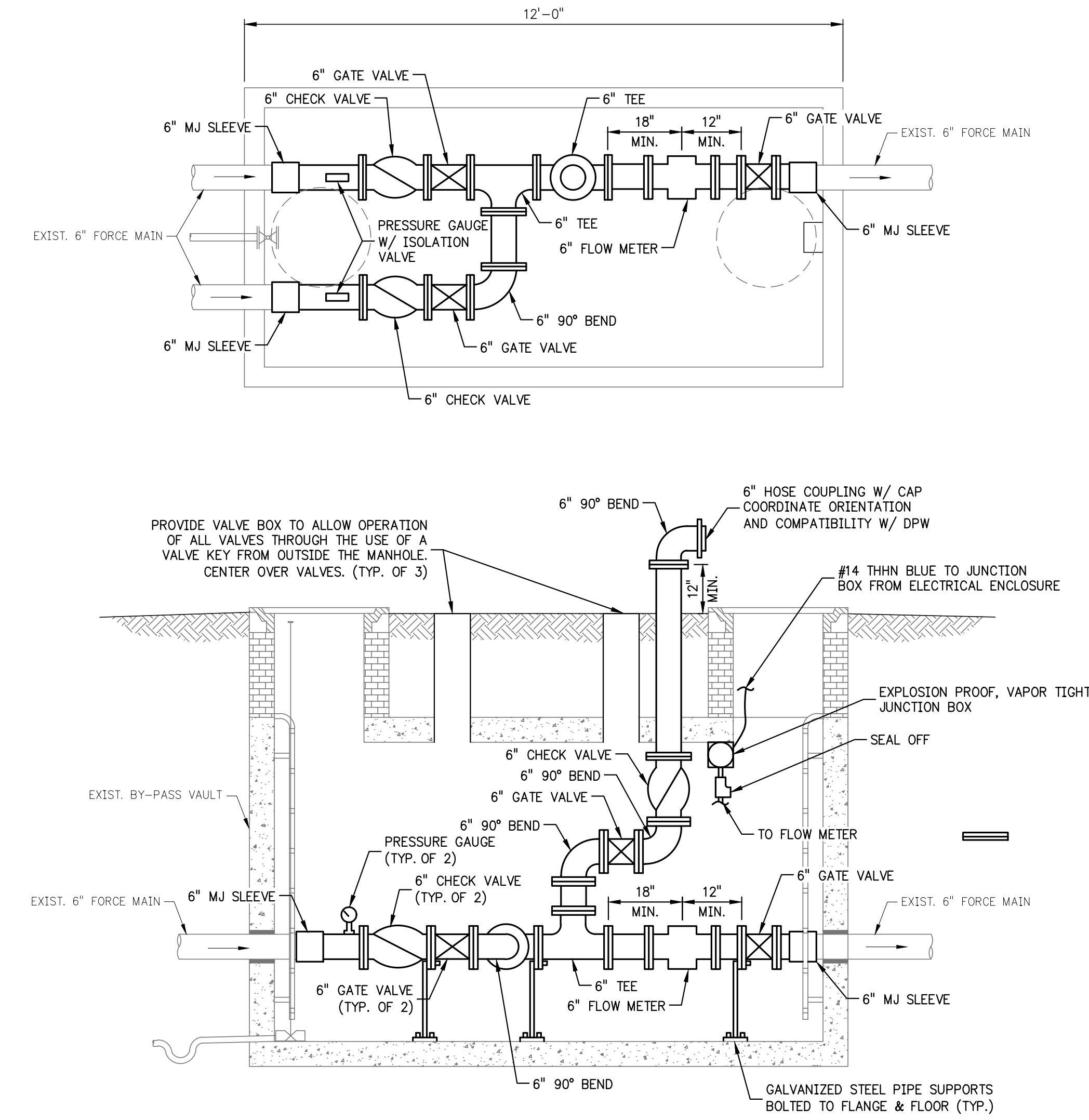
1. THE CONTRACTOR SHALL PROVIDE TEMPORARY SOIL EROSION CONTROL MEASURES PER P.A. 451 AS AMENDED. WITH THE USE OF SILT FENCE AND OTHER TEMPORARY MEASURES THE CONTRACTOR SHALL PROTECT THE ADJACENT AREA FROM ACCELERATED EROSION AND SEDIMENTATION FLOWS RESULTING FROM CONSTRUCTION. THE CONTRACTOR SHALL INSTALL ADDITIONAL TEMPORARY AND PERMANENT SOIL EROSION CONTROL MEASURES, IF DIRECTED BY THE ENGINEER OR SOIL EROSION CONTROL OFFICER, AT NO ADDITIONAL COST TO THE PROJECT.
2. INSTALLATION AND MAINTENANCE OF TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. SHOULD ADDITIONAL SOIL EROSION CONTROL MEASURES BE DETERMINED TO BE NECESSARY BY EITHER THE SOIL EROSION CONTROL OFFICER OR THE OWNER'S ENGINEER THEY SHALL BE IN PLACE NO LATER THAN 24 HOURS FROM THE TIME OF NOTIFICATION TO THE GENERAL CONTRACTOR FOR THE PROJECT. IF NOT PLACED IN 24 HOURS OR LESS ALL ON SITE CONSTRUCTION WILL BE HALTED UNTIL SUCH MEASURES ARE INSTALLED AND APPROVED BY EITHER THE SOIL EROSION CONTROL OFFICER OR THE OWNER'S ENGINEER.
4. ALL DISTURBED NON-HARD SURFACE AREAS TO BE STABILIZED WITH TOPSOIL, SEEDED, FERTILIZED AND MULCHED. DISTURBED AREAS SHALL BE TOPSOILED TO A DEPTH NOT LESS THAN FOUR (4) INCHES. SLOPES BETWEEN 1 ON 3 AND 1 ON 2 SHALL BE SODDED AND STAKED OR RECEIVE SEED WITH MULCH BLANKET.
5. IF REQUESTED BY THE ENGINEER OR SOIL EROSION CONTROL OFFICER, A WATER TRUCK SHALL BE KEPT ON STAND-BY ON SITE DURING THE CONSTRUCTION PHASE OF THE PROJECT. THE WATER TRUCK SHALL BE USED AS DIRECTED BY THE ENGINEER OR SOIL EROSION CONTROL OFFICER TO CONTROL WIND EROSION AND DUST CONTROL.
6. ALL STORM DRAINAGE PIPE SHALL BE CORRUGATED GALVANIZED STEEL PIPE, HDPE OR APPROVED EQUAL.
7. EXISTING STORM DRAINAGE DITCHES SHALL BE REBUILT IF FILLED IN OR REMOVED DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE TO REPAIR OR REPLACE, AS REQUIRED, ALL DRAINAGE CULVERTS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED/REPLACED. ALL COSTS ASSOCIATED WITH REPAIRING/REPLACING SHALL BE INCLUDED IN THE COST OF THE PROJECT.
8. THE CONTRACTOR SHALL REMOVE OR CAUSE TO BE REMOVED ALL SEDIMENT OR SOILS THAT HAVE BEEN DROPPED, WASHED ON OR TRACKED OUT ONTO PUBLIC RIGHT-OF-WAY OR PRIVATE ROADS AT THE END OF EACH WORKING DAY OR AFTER EACH RAIN EVENT ON NON-WORK DAYS.
9. ALL REMOVED TOPSOIL WILL BE STOCKPILED WITHIN THE PROJECT AREA. IF ADDITIONAL TOPSOIL IS AVAILABLE AFTER TOPSOILING THE CONSTRUCTION AREA, IT WILL BE STOCKPILED WITHIN 1000 FEET OF THE CONSTRUCTION AREA AS DIRECTED BY THE OWNER OR ENGINEER.
10. THE CONTRACTOR SHALL REPAIR ALL WASHOUTS AND EROSION DURING THE GUARANTEE PERIOD OF ONE (1) YEAR AT NO ADDITIONAL COST TO THE OWNER.

**FORCEMAIN NOTES**

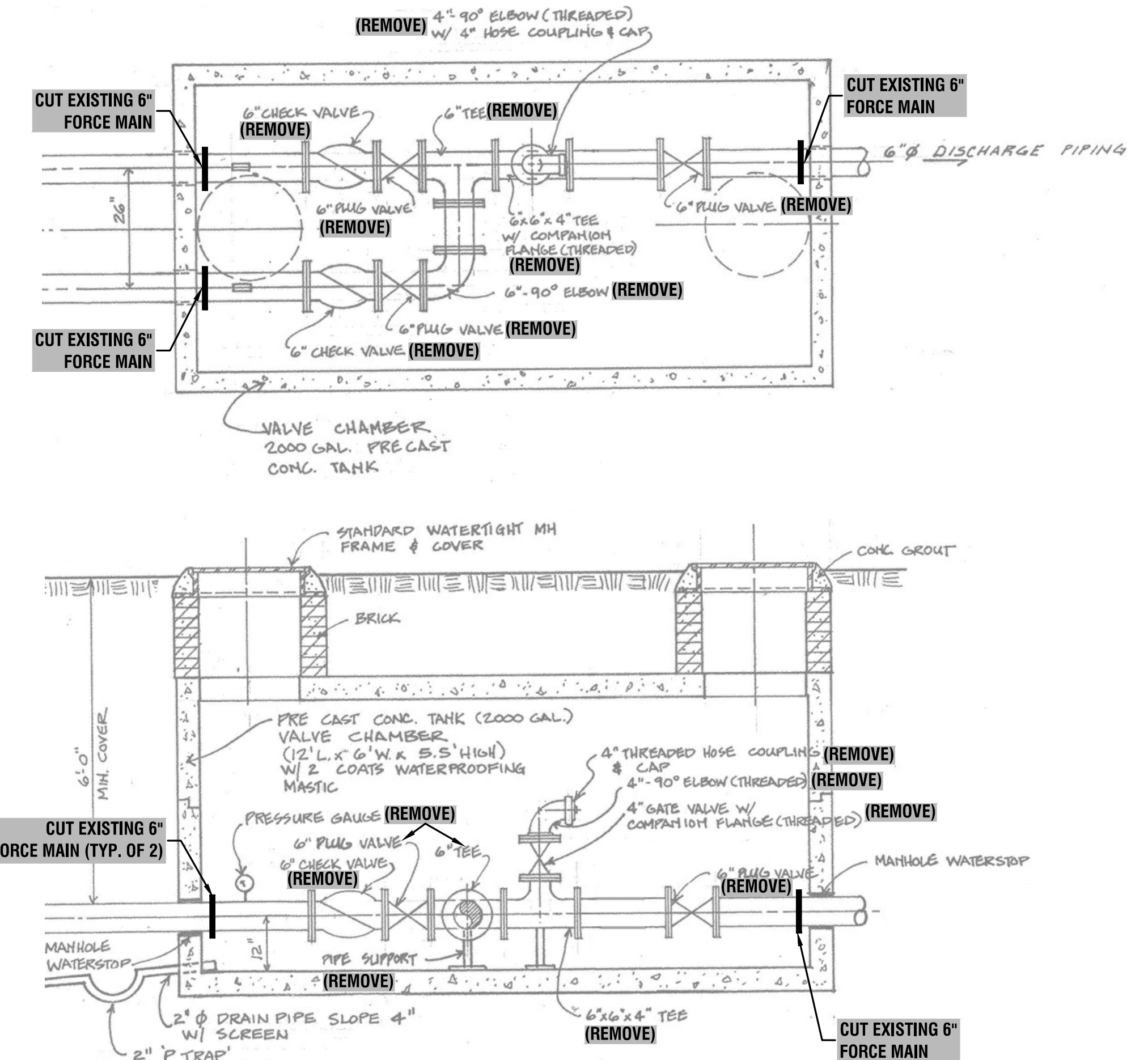
1. ALL CONSTRUCTION MATERIALS AND PROCEDURES MUST CONFORM WITH CURRENT UNION TOWNSHIP D.P.W. STANDARDS, SPECIFICATIONS AND DETAILS.
2. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 48 HOURS PRIOR TO THE START OF CONSTRUCTION.
3. NO CONNECTION RECEIVING STORM WATER OR GROUND WATER SHALL BE MADE TO SANITARY SEWER OR FORCEMAIN.
4. NO CONNECTION TO THE EXISTING FORCEMAIN SHALL BE MADE UNTIL THE NEW SEWER HAS BEEN INSTALLED, TESTED, INSPECTED, AND APPROVED BY THE ENGINEER AND THE D.P.W.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE MANHOLE AND VALVE BOX RIMS TO THE FINISH GRADE ELEVATIONS. THE ELEVATIONS SHOWN ARE BASED UPON PLAN GRADES AND ARE SUBJECT TO CHANGE.

**ELECTRICAL NOTES**

1. PUMP CHAMBER IS CLASSIFIED AS CLASS 1 DIVISION 1 GROUP D
2. VALVE CHAMBER IS CLASSIFIED AS CLASS 1 DIVISION 2 GROUP D
3. VALVE CHAMBER ELECTRICAL WIRING METHODS TO COMPLY WITH CLASS 1 DIVISION 2 GROUP D NATIONAL ELECTRICAL CODE STANDARDS. ALL EQUIPMENT TO COMPLY WITH THE SAME, TO INCLUDE FLOW METER.
4. ALL CONDUIT SEAL-OFF'S SHALL BE GAS TIGHT.
5. GAS TIGHT SEALS MUST BE USED REGARDLESS OF WEATHER OR NOT JUNCTION BOXES ARE USED.
6. A GAS TIGHT CONDUIT SEAL IS REQUIRED BETWEEN THE CONDUIT FROM THE VALVE CHAMBER AND THE ELECTRICAL ENCLOSURE.
7. VALVE CHAMBER: GAS TIGHT SEALS MUST BE USED FOR THE CONDUITS FROM THE ELECTRICAL ENCLOSURE TO AND FROM MAG-METER POWER AND CONTROL CIRCUITS. THE LOCATIONS OF THIS SEAL RELATIVE TO ANY JUNCTION BOXES, CONNECTORS, OR LIKE IS TO BE IN ACCORDANCE WITH NEC REQUIREMENTS FOR THE CLASS 1, GROUP D, DIVISIONS 2 CLASSIFICATION OF THE VALVE CHAMBER. A MAG-METER SHALL BE ENDRESS HAUSER PROMAG 10W OR APPROVED EQUAL.
8. JUNCTION BOX TO BE NEMA 4X.
9. UNDERGROUND ELECTRICAL CONDUIT TO BE SCH40 PVC.
10. GRC TO BE USED FOR CONDUIT IN MANHOLE.
11. FLOW METER TO INCLUDE REMOTE READ TO BE INSTALLED IN THE ELECTRICAL ENCLOSURE.



**PROPOSED BY-PASS MANHOLE DETAIL**  
SCALE: NOT TO SCALE

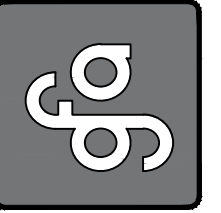


**EXISTING/DEMOLITION BY-PASS MANHOLE DETAIL**  
SCALE: NOT TO SCALE



**PROJECT LOCATION**

http://gfa.io  
231.946.8874 (p)  
231.946.9708 (f)



ENGINEERING SURVEYING TESTING & OPERATIONS  
123 West Front Street  
Troy, MI 48068

REV#	DATE	BY	CHKD	DESCRIPTION
0	08/20/2019	CPH	CPH	TOWNSHIP REVIEW FOR BIDS

**CHARTER TOWNSHIP OF UNION  
PUMP STATION #7 BY-PASS MANHOLE UPGRADES  
BY-PASS MANHOLE PLAN AND DETAILS**

UNION TOWNSHIP, ISABELLA COUNTY, MICHIGAN

JENNIFER HODGES P.E.  
C. BALLANCE  
19029U  
C1.0

These documents are prepared in accordance with the contractual terms and conditions for this project.