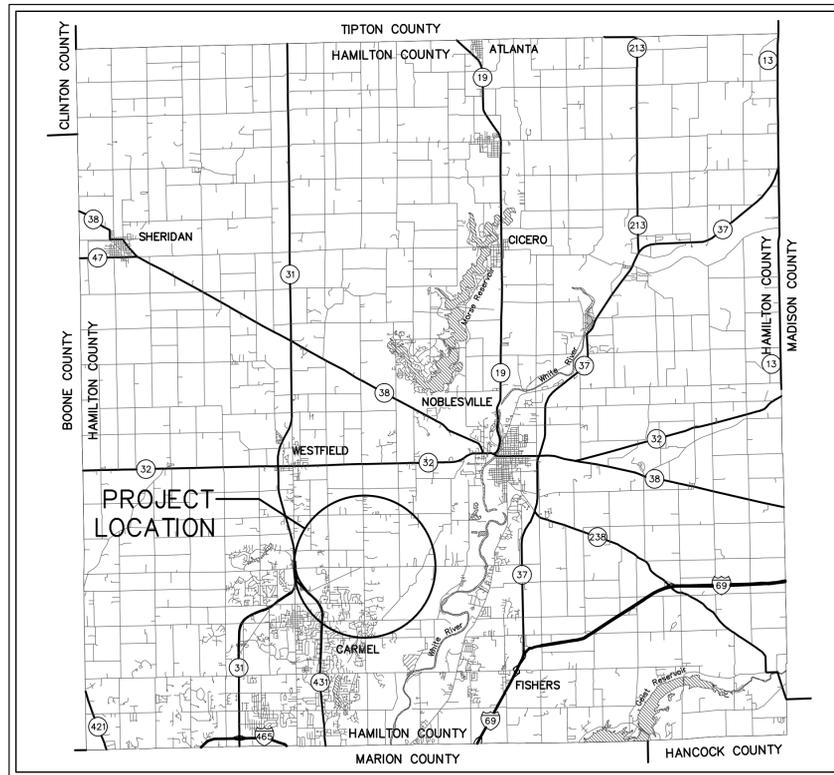
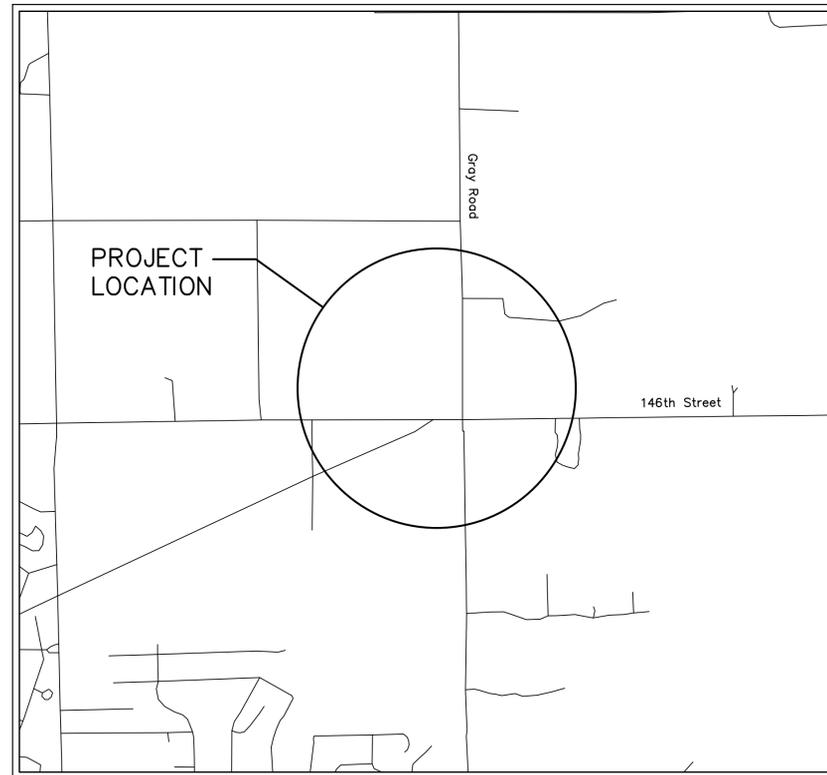


DEVELOPMENT PLANS FOR BRIDGEWATER POINTE SHOPPES

WESTFIELD, INDIANA S.E. 1/4 SECTION 17, T18N, R4E, WASHINGTON TOWNSHIP, HAMILTON COUNTY



LOCATION MAP
NOT TO SCALE



VICINITY MAP
NOT TO SCALE

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PLAN DATE: 07-31-2015

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CAUTION !!
THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED UPON ABOVE GROUND EVIDENCE (including, but not limited to, manholes, inlets, valves, and marks made upon the ground by others) AND ARE SPECULATIVE IN NATURE. THERE MAY ALSO BE OTHER EXISTING UNDERGROUND UTILITIES FOR WHICH THERE IS NO ABOVE GROUND EVIDENCE OR FOR WHICH NO ABOVE GROUND EVIDENCE WAS OBSERVED. THE EXACT LOCATIONS OF SAID EXISTING UNDERGROUND UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY AND ALL CONSTRUCTION.
811 OR 1-800-382-5544
CALL TOLL FREE
- INDIANA UNDERGROUND -

REV	DATE	DESCRIPTION

**APPROVAL PENDING
NOT FOR CONSTRUCTION**

JARED L. WILKERSON, P.E.

DESIGN AND CONSTRUCTION OF THIS PROJECT SHALL COMPLY WITH THE HAMILTON COUNTY SURVEYOR'S OFFICE AND THE CITY OF WESTFIELD CONSTRUCTION SPECIFICATIONS AND STANDARD DETAILS.

C001
JOB# 2015.01267

GENERAL NOTES

1. ALL WORK TO CONFORM TO STATE AND LOCAL REGULATIONS.
2. CONTRACTOR SHALL KEEP ADJOINING PROPERTIES CLEAN OF CONSTRUCTION DEBRIS AND CONSTRUCTION TRAFFIC AT ALL TIMES.
3. THE CONTRACTOR SHALL PROTECT AND NOT DESTROY THE BASE SURVEY CONTROL POINTS DURING DEMOLITION AND CONSTRUCTION.
4. ALL UTILITY INFORMATION SHALL BE VERIFIED BY THE CONTRACTOR. CONTACT ENGINEER IMMEDIATELY IF ANY VARIATION EXISTS.
5. MAINTAIN EXISTING UTILITIES TO REMAIN IN SERVICE AND PROTECT AGAINST DAMAGE DURING DEMOLITION AND CONSTRUCTION OPERATIONS.
6. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FIELD DIMENSIONS. IF ANY DISCREPANCIES ARE FOUND IN THESE PLANS FROM ACTUAL FIELD CONDITIONS, THE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY.

SITE NOTES

1. ALL PARKING STRIPES ARE TO BE 4" PAINTED (WHITE). ADA ACCESSIBLE PARKING STRIPES SHALL BE 4" PAINTED (BLUE).
2. ALL DIMENSIONS ARE TO THE EDGE OF PAVEMENT OR FACE OF CURB, UNLESS NOTED OTHERWISE.
3. ALL DIMENSIONS ARE TO FACE OF BRICK OR FACING MATERIAL, WHERE APPLICABLE.
4. ALL DIMENSIONS ARE PARALLEL WITH, OR PERPENDICULAR TO BASE LINES, PROPERTY LINES OR BUILDING LINES, UNLESS OTHERWISE NOTED.
5. PROVIDE SMOOTH TRANSITIONS FROM NEW AREAS TO EXISTING FEATURES AS NECESSARY.
6. RESURFACE OR RECONSTRUCT AT LEAST TO ORIGINAL CONDITIONS ALL AREAS WHERE THE EXISTING PAVEMENT OR LAWNS ARE DAMAGED DURING CONSTRUCTION FROM TRAFFIC BY CONTRACTORS, SUBCONTRACTORS OR SUPPLIERS AFTER CONSTRUCTION WORK IS COMPLETE.
7. EXISTING PAVEMENT TO BE SAW CUT IN ALL AREAS WHERE INDICATED NEW PAVEMENT TO JOIN EXISTING.
8. THE EDGE OF THE EXISTING ASPHALT PAVEMENT SHALL BE PROPERLY SEALED WITH A TACK COAT MATERIAL IN ALL AREAS WHERE NEW ASPHALT PAVEMENT IS INDICATED TO JOIN EXISTING ASPHALT.
9. CONCRETE SAW CUTTING SHALL BE DONE AS SOON AS POURED CONCRETE HAS CURED AND CAN SUPPORT WEIGHT. PROVIDE A NEAT CUT WHICH IS TRUE IN ALIGNMENT.
10. ALL JOINTS ARE TO CONTINUE THROUGH THE CURB.
11. RADIAL JOINTS SHALL BE NO SHORTER THAN 1.5'.
12. CONTRACTOR SHALL USE A THICKENED EXPANSION JOINT AROUND THE PERIMETER OF ANY BLOCK OUT IN THE CONCRETE PAVING.
13. ALL CONSTRUCTION JOINTS SHALL BE SAWN, CLEANED OF DEBRIS, BLOWN DRY AND IMMEDIATELY SEALED WITH THE APPROPRIATE SEALANT ACCORDING TO MANUFACTURERS DIRECTIONS.
14. ALL MATERIALS TO BE IN ACCORDANCE WITH LOCAL DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS RELATIVE TO MATERIAL, MIX, PLACEMENT AND WORKMANSHIP.
15. ALL SIDEWALKS SHALL COMPLY WITH ADA STANDARDS. MAXIMUM CROSS SLOPE OF 1:50 AND MAXIMUM LONGITUDINAL SLOPE OF 1:20.
16. CHAMFER ALL ENDS OF CURBS.

DEMOLITION NOTES

1. CLEAR AND GRUB ALL TREES AND VEGETATION NECESSARY FOR CONSTRUCTION.
2. PROTECT TREES TO REMAIN DURING CONSTRUCTION.
3. PLANT MATERIALS TO REMAIN, TO BE PROTECTED BY TREE FENCE WHICH ENCOMPASSES IT'S DRIP LINE. NO CONSTRUCTION EQUIPMENT, MATERIALS OR DEBRIS SHALL BE LOCATED WITHIN TREE PROTECTION BOUNDARIES. NO DEMOLITION CAN OCCUR UNTIL TREE PROTECTION IS APPROVED BY THE OWNER.
4. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING STRUCTURES, FENCES, CONCRETE, ASPHALT PAVEMENT AND OTHER MISCELLANEOUS APPURTENANCES OFF SITE, UNLESS NOTED TO REMAIN ON THE CONTRACT DRAWINGS.
5. THE USE OF ANY TYPE OF EXPLOSIVES WILL NOT BE PERMITTED.
6. CONDUCT DEMOLITION AND CONSTRUCTION OPERATIONS TO ENSURE MINIMAL INTERFERENCE WITH STREETS, WALKS AND OTHER ADJACENT OCCUPIED FACILITIES.
7. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS OR OTHER OCCUPIED FACILITIES WITHOUT PERMISSION FROM THE LOCAL AUTHORITIES HAVING JURISDICTION. PROVIDE ALTERNATE ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC WAYS, IF REQUIRED BY GOVERNING AUTHORITIES.
8. ENSURE SAFE PASSAGE OF PERSONS AROUND AREAS OF DEMOLITION AND CONSTRUCTION. CONDUCT OPERATIONS TO PREVENT DAMAGE TO ADJACENT STRUCTURES AND OTHER FACILITIES AND INJURY TO PERSONS.
9. PROMPTLY REPAIR DAMAGE TO ADJACENT FACILITIES CAUSED BY DEMOLITION AND CONSTRUCTION OPERATIONS.
10. ALL UTILITIES TO BE REMOVED SHALL BE DISCONNECTED AND CAPPED AT THE NEAREST CONNECTION POINT.
11. NO ON-SITE BURNING IS PERMITTED.
12. CONTRACTOR SHALL USE MEASURES TO CONTROL DUST AT ALL TIMES.
13. DEMOLITION ITEMS INCLUDE BUT ARE NOT LIMITED TO DEMOLITION ITEMS INDICATED ON THIS PLAN. IT IS THE CONTRACTORS RESPONSIBILITY TO REMOVE OR RELOCATE ITEMS WHICH INTERFERE WITH NEW CONSTRUCTION.
14. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO COMMENCING DEMOLITION.

GRADING NOTES

1. SITE GRADING SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
2. THE EXCAVATING CONTRACTOR MUST TAKE PARTICULAR CARE WHEN EXCAVATING IN AND AROUND EXISTING UTILITY LINES AND EQUIPMENT. VERIFY COVER REQUIREMENTS BY UTILITY CONTRACTORS AND/OR UTILITY COMPANIES SO AS NOT TO CAUSE DAMAGE.
3. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES 72 HOURS BEFORE CONSTRUCTION IS TO START TO VERIFY IF ANY UTILITIES ARE PRESENT ON SITE. ALL VERIFICATIONS (LOCATION, SIZE AND DEPTH), SHALL BE MADE BY THE APPROPRIATE UTILITY COMPANIES. WHEN EXCAVATING AROUND OR OVER EXISTING UTILITIES, THE CONTRACTOR MUST NOTIFY THE UTILITY COMPANY SO A REPRESENTATIVE OF THAT UTILITY COMPANY CAN BE PRESENT TO INSTRUCT AND OBSERVE DURING CONSTRUCTION. SUBCONTRACTORS ARE RESPONSIBLE FOR LOCATIONS OF UTILITIES FOR THEIR OWN WORK.
4. CONTRACTOR TO ADJUST ALL EXISTING SURFACE INFRASTRUCTURE (HYDRANTS, VALVES, HANDHOLES, CASTINGS, IRRIGATION SYSTEM, UTILITY PEDESTALS, ETC.) AS REQUIRED TO MEET PROPOSED GRADE AT HIS/HER OWN COST.
5. AFTER STRIPPING TOPSOIL MATERIAL, PROOFROLL SHALL BE PERFORMED BY A LOADED TANDEM PNEUMATIC TIRE DUMP TRUCK MINIMUM GROSS VEHICLE WEIGHT OF 22 TONS. THE TIRES SHALL BE OPERATED AT INFLATION PRESSURES BETWEEN 70-80 PSI UNLESS OTHERWISE NOTED BY THE GEOTECHNICAL ENGINEER. THE TIRES SHALL BE INFLATED WITH AIR ONLY. NO LIQUID SHALL BE USED. THE PROOFROLL SHALL BE COMPLETED UNDER INSPECTION OF SOILS FIRM TO DETERMINE LOCATIONS OF ANY POCKETS OF UNSUITABLE MATERIAL. THE NECESSITY FOR SUBDRAINS AND/OR REMOVAL OF ANY UNSUITABLE MATERIAL WILL BE DETERMINED AT THE TIME OF CONSTRUCTION.
6. PROVIDE POSITIVE DRAINAGE WITHOUT PONDING IN ALL AREAS. AFTER INSTALLATION, CONTRACTOR TO TEST FOR, AND CORRECT, IF ANY, STANDING WATER CONDITIONS.
7. ALL PROPOSED SPOT ELEVATIONS OR CONTOURS ARE THE FINAL PAVEMENT AND FINAL GRADE ELEVATIONS.
8. SEE APPROPRIATE DETAILS TO DETERMINE SUBGRADE ELEVATIONS BELOW FINISH GRADE ELEVATIONS INDICATED.
9. TRENCHES FOR ALL STORM DRAIN LINES SHALL BE BACKFILLED COMPLETELY WITH SELECT GRANULAR MATERIAL IF WITHIN 5 FEET OF PAVEMENT.
10. CONTRACTOR TO PERPETUATE ANY SUBSURFACE DRAIN TILES OR PIPES ENCOUNTERED DURING CONSTRUCTION AND PROVIDE POSITIVE OUTLET TO DOWNSTREAM RECEIVING SYSTEM. CONTRACTOR TO NOTIFY THE ENGINEER WITH ANY CIRCUMSTANCES WHERE THIS CANNOT BE ACCOMPLISHED.
11. DUE TO SITE CONSTRAINTS, THE EARTHWORK FOR THE SITE AS DESIGNED MAY OR MAY NOT BALANCE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW THE EXISTING CONDITIONS AND INCLUDE IN THEIR BID ALL EARTHWORK COSTS INCLUDING IMPORTS AND/OR EXPORTS NECESSARY TO MAKE THE SITE BALANCE.
12. CONTRACTOR TO STABILIZE EXPOSED EARTH AS INDICATED BY THE STORMWATER POLLUTION PREVENTION PLAN OR GOVERNING AUTHORITY.

UTILITY NOTES

1. SITE UTILITIES SHALL NOT PROCEED UNTIL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
2. THE EXCAVATING CONTRACTOR MUST TAKE PARTICULAR CARE WHEN EXCAVATING IN AND AROUND EXISTING UTILITY LINES AND EQUIPMENT. VERIFY COVER REQUIREMENTS BY UTILITY CONTRACTORS AND/OR UTILITY COMPANIES SO AS NOT TO CAUSE DAMAGE.
3. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES 72 HOURS BEFORE CONSTRUCTION IS TO START TO VERIFY IF ANY UTILITIES ARE PRESENT ON SITE. ALL VERIFICATIONS (LOCATION, SIZE AND DEPTH), SHALL BE MADE BY THE APPROPRIATE UTILITY COMPANIES. WHEN EXCAVATING AROUND OR OVER EXISTING UTILITIES, THE CONTRACTOR MUST NOTIFY THE UTILITY COMPANY SO A REPRESENTATIVE OF THAT UTILITY COMPANY CAN BE PRESENT TO INSTRUCT AND OBSERVE DURING CONSTRUCTION. SUBCONTRACTORS ARE RESPONSIBLE FOR LOCATIONS OF UTILITIES FOR THEIR OWN WORK.
4. CONTRACTOR TO ADJUST ALL EXISTING SURFACE INFRASTRUCTURE (HYDRANTS, VALVES, HANDHOLES, CASTINGS, IRRIGATION SYSTEM, UTILITY PEDESTALS, ETC.) AS REQUIRED TO MEET PROPOSED GRADE.
5. ALL UTILITY MATERIALS AND INSTALLATION SHALL CONFORM TO LOCAL STANDARDS FOR EACH UTILITY AGENCY HAVING JURISDICTION.
6. TRENCHES FOR ALL UTILITY LINES SHALL BE BACKFILLED COMPLETELY WITH SELECT GRANULAR MATERIAL IF WITHIN 5 FEET OF PAVEMENT.
7. CONTRACTOR SHALL COORDINATE INSTALLATION OF UTILITIES AND CONDUITS TO AVOID CONFLICTS AND PROVIDE REQUIRED MINIMUM DEPTHS OF COVER. THE CONTRACTOR SHALL PROVIDE ANY ADDITIONAL BENDS WITH THRUST BLOCKS REQUIRED TO ASSURE PROPER INSTALLATION OF WATER MAINS AND LATERALS.
8. IN THE EVENT OF A CONFLICT BETWEEN WATER LINES AND STORM DRAINS, THE CONTRACTOR SHALL EITHER ADJUST THE WATER LINE DOWNWARD IN SUCH A MANNER SO THAT THE PIPE MANUFACTURER'S RECOMMENDATIONS ON PIPE DEFLECTION AND JOINT STRESS ARE NOT EXCEEDED OR THE CONTRACTOR SHALL PROVIDE APPROPRIATE BENDS AND CROSSINGS.
9. ALL COORDINATES AND DIMENSIONS ARE TO THE CENTERLINE OF UTILITIES AND STRUCTURES.
10. ALL STORM SEWER AND ROOF DRAIN PIPES THAT OUTLET TO GROUND SURFACE SHALL BE CONSTRUCTED WITH A CONCRETE END SECTION AND GABION BASKET ARMOR.

EROSION CONTROL NOTES

1. CONTRACTOR SHALL INSTALL ALL PERIMETER SILT FENCE AND SEDIMENT CONTROL BARRIERS PRIOR TO CLEARING AND GRADING.
2. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE AS THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SOIL SEDIMENT FROM LEAVING THE SITE.
3. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY ON SITE INSPECTION OR CITY OF WESTFIELD INSPECTOR.
4. LAND ALTERATION WHICH STRIPS THE LAND OF VEGETATION, INCLUDING RE-GRADING, SHALL BE DONE IN A WAY THAT WILL MINIMIZE EROSION.
5. SEDIMENT LADEN WATER SHALL BE DETAINED BY EROSION CONTROL PRACTICES AS NEEDED TO MINIMIZE SEDIMENTATION IN RECEIVING WATER. NO STORM WATER SHALL BE DISCHARGED FROM THE SITE IN A MANNER THAT CAUSES EROSION AT THE POINT OF DISCHARGE.
6. WASTE AND UNUSED BUILDING MATERIALS SHALL NOT BE ALLOWED TO BE CARRIED FROM THE SITE BY STORM WATER RUNOFF. PROPER DISPOSAL OF ALL WASTE AND UNUSED BUILDING MATERIALS IS REQUIRED.
7. SEDIMENT BEING TRACKED ONTO PUBLIC OR PRIVATE ROADWAYS SHALL BE MINIMIZED. CLEARING OF ACCUMULATED SEDIMENT SHALL NOT INCLUDE FLUSHING WITH WATER. CLEARED SEDIMENT SHALL BE RETURNED TO THE SITE FOR DISPOSAL.
8. SOIL WHICH HAS ACCUMULATED NEXT TO EROSION CONTROL DEVICES SHALL BE COLLECTED AND RE-DISTRIBUTED ON SITE AFTER EACH RAINFALL EVENT, AND AT LEAST ONCE A WEEK.
9. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
10. THE SITE IS NOT LOCATED WITHIN ANY FLOODPLAIN, FLOODWAY OR FLOODWAY FRINGE AS INDICATED ON THE FLOOD INSURANCE RATE MAP (FIRM) FOR HAMILTON COUNTY, IN, MAP NUMBER 18057C0227G, DATED NOVEMBER 19, 2014.
11. SCHEDULE OF EARTHWORK ACTIVITIES:
 - a. THE DURATION OF TIME WHICH AN AREA REMAINS EXPOSED SHALL BE KEPT TO A PRACTICAL MINIMUM. THE AREA SHALL BE STABILIZED AS SOON AS POSSIBLE. UN-VEGETATED AREAS THAT ARE SCHEDULED OR LIKELY TO BE LEFT INACTIVE FOR FIFTEEN (15) DAYS OR MORE MUST BE TEMPORARILY OR PERMANENTLY STABILIZED WITH MEASURES APPROPRIATE FOR THE SEASON TO MINIMIZE EROSION POTENTIAL. ALTERNATIVE MEASURES TO SITE STABILIZATION ARE ACCEPTABLE IF THE PROJECT SITE OWNER OR THEIR REPRESENTATIVE CAN DEMONSTRATE THEY HAVE IMPLEMENTED EROSION AND SEDIMENT CONTROL MEASURES ADEQUATE TO PREVENT SEDIMENT DISCHARGE.
 - b. TOPSOIL REPLACEMENT SHALL TAKE PLACE FROM MARCH 1 TO OCTOBER 31. STOCKPILE TOPSOIL AT ALL OTHER TIMES OF THE YEAR. PERMANENT AND FINAL VEGETATION AND STRUCTURAL EROSION CONTROL DEVICES SHALL BE INSTALLED WITHIN SEVEN (7) DAYS AFTER FINAL GRADING OR AS SOON AS POSSIBLE.
 - c. INSTALL INLET PROTECTION AROUND INLETS IMMEDIATELY UPON COMPLETION OF THE STRUCTURE. REMOVE INLET PROTECTION FOR PAVING OPERATION. REPLACE INLET PROTECTION AFTER PAVING IS COMPLETE. INLET PROTECTION SHALL REMAIN IN PLACE UNTIL VEGETATION IS ESTABLISHED ON SEEDED AREAS BEHIND THE CURB.
15. PRIOR TO COMPLETION OF THE PROJECT, CONTRACTOR SHALL CLEAN OUT ALL STORM DRAINAGE STRUCTURES AND RESTORE ALL DITCHES AND PONDS TO DESIGNED GRADES.
16. CONTRACTOR SHALL REMOVE ALL SEDIMENT CONTROL BARRIERS ONCE CONSTRUCTION IS COMPLETE AND THE SITE HAS BEEN STABILIZED.

NOTE:
 1. ALL WORK TO CONFORM TO CITY OF WESTFIELD STANDARD SPECIFICATIONS AND DETAILS UNLESS OTHERWISE NOTED.
 2. ALL WATER AND SANITARY WORK TO CONFORM TO CITIZENS WESTFIELD STANDARDS.

GENERAL NOTES:
 1. CONTRACTOR SHALL PROTECT AND NOT DESTROY THE PROPERTY CORNER MONUMENTS DURING CONSTRUCTION.
 2. CONTRACTOR TO VERIFY LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES PRIOR TO COMMENCING ANY CONSTRUCTION. CONTACT ENGINEER IF VARIATION EXISTS.
 3. SEE SHEET C002 GENERAL NOTES FOR MORE INFORMATION.

CAUTION !!
 THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED UPON ABOVE GROUND EVIDENCE (including, but not limited to, manholes, inlets, valves, and marks made upon the ground by others) AND ARE SPECULATIVE IN NATURE. THERE MAY ALSO BE OTHER EXISTING UNDERGROUND UTILITIES FOR WHICH THERE IS NO ABOVE GROUND EVIDENCE OR FOR WHICH NO ABOVE GROUND EVIDENCE WAS OBSERVED. THE EXACT LOCATIONS OF SAID EXISTING UNDERGROUND UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY AND ALL CONSTRUCTION.
 CALL TOLL FREE
 "811" OR 1-800-382-5544
 - INDIANA UNDERGROUND -

PLOT DATE: 9/30/2015 11:43 AM
 PLOT SCALE: 1:1
 EDIT DATE: 9/30/2015
 EDITED BY: RBREKBERG
 DRAWING FILE: P:\2015\012670_Drawing\ChalConstruction Documents\2015.01267.CE.C002.GM.dwg



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**BRIDGEWATER
 POINTE SHOPPES**

146th Street and
 Gray Road
 Westfield, IN

APPROVAL PENDING
 NOT FOR CONSTRUCTION

CERTIFIED BY

ISSUANCE INDEX

DATE:	07-31-2015
PROJECT PHASE:	----

REVISION SCHEDULE

NO.	DESCRIPTION	DATE

Project Number 2015.01267

GENERAL NOTES

C002

EARTHWORK:

- A. GENERAL
 - 1. EARTHWORK INCLUDES CLEARING, GRUBBING, SUBGRADE PREPARATION, REMOVAL OF TREES AND VEGETATION (INCLUDING STUMPS), PROTECTION OF TREES TO REMAIN, STRIPPING AND STORAGE OF TOPSOIL, FILL COMPACTION AND ROUGH GRADING OF ENTIRE SITE AS INDICATED ON DRAWINGS.
 - 2. THE CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING OF ANY CHANGES, ERRORS, OR OMISSIONS FOUND ON THE PLANS OR IN THE FIELD, BEFORE WORK IS STARTED OR RESUMED.
 - 3. CONTRACTOR SHALL PROVIDE AND PLACE ANY ADDITIONAL FILL MATERIAL FROM OFF THE SITE AS MAY BE NECESSARY TO PRODUCE THE GRADES REQUIRED AS SHOWN ON THE DRAWINGS. FILL OBTAINED FROM OFF SITE MUST BE SUITABLE SOIL AS DEFINED IN THE SPECIFICATIONS OR AS OTHERWISE APPROVED BY OWNER.
 - 4. THE CONTRACTOR SHALL ACCEPT THE SITE IN ITS CURRENT STATE AND SHALL REMOVE ALL TRASH, RUBBISH, AND DEBRIS FROM THE SITE PRIOR TO STARTING EXCAVATION.
 - 5. EXCEPT FOR STRIPPED TOPSOIL AND OTHER MATERIALS INDICATED TO BE STOCKPILED OR OTHERWISE REMAIN OWNER'S PROPERTY, CLEARED MATERIALS SHALL BECOME CONTRACTOR'S PROPERTY AND SHALL BE REMOVED FROM PROJECT SITE.
 - 6. DO NOT CLOSE OR OBSTRUCT STREETS, WALKS, DRIVES, FACILITIES, ETC. WITHOUT OWNER PERMISSION OR AUTHORITY HAVING JURISDICTION.
 - 7. ALL EROSION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO COMMENCING EARTHWORK AND CLEARING OPERATIONS. EROSION CONTROL MEASURES SHOULD BE PROTECTED AND MAINTAINED THROUGHOUT CONSTRUCTION.
 - 8. CONTRACTOR SHALL CAREFULLY MAINTAIN ALL BENCHMARKS, MONUMENTS, AND OTHER REFERENCE POINTS. IF DISTURBED, CONTRACTOR SHALL ENGAGE LICENSED LAND SURVEY FOR REPLACEMENT OF REFERENCE POINTS.
 - 9. WHERE THESE SPECIFICATIONS CONFLICT WITH TOWN OF DAYTON STANDARDS, THE STANDARDS OF THE JURISDICTION HAVING AUTHORITY SHALL PREVAIL.
- B. MATERIALS
 - 1. CONTRACTOR TO PROVIDE BORROW SOIL MATERIALS WHEN SUFFICIENT SATISFACTORY SOIL MATERIALS ARE NOT AVAILABLE FROM EXCAVATIONS.
 - 2. SATISFACTORY (OR SUITABLE) SOILS: SOIL CLASSIFICATION GROUPS GP, GW, GM, SW, SP, AND SM ACCORDING TO ASTM D2487, 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 MATERIAL.
 - 3. UNSATISFACTORY (OR UNSUITABLE) SOILS: SOIL CLASSIFICATION GROUPS GC, SC, CL, ML, OL, CH, MH, OH, AND PT ACCORDING TO ASTM D 2487, OR A COMBINATION OF THESE GROUPS. UNSATISFACTORY SOILS ALSO INCLUDES SATISFACTORY SOILS NOT MAINTAINED WITHIN 2 PERCENT OF OPTIMUM MOISTURE CONTENT AT TIME OF COMPACTION.
- C. EXECUTION
 - 1. CONTRACTOR SHALL LOCATE, IDENTIFY, DISCONNECT, AND SEAL OR CAP UTILITIES INDICATED TO BE REMOVED OR ABANDONED IN PLACE. DO NOT INTERRUPT UTILITIES SERVING FACILITIES OCCUPIED BY OWNER UNLESS PERMISSION IS GRANTED. NOTIFY OWNER AT LEAST TWO DAYS IN ADVANCE OF PROPOSED UTILITY INTERRUPTIONS.
 - 2. REMOVE OBSTRUCTIONS, TREES, SHRUBS, AND OTHER VEGETATION AS REQUIRED FOR NEW CONSTRUCTION. STRIP TOPSOIL TO DEPTH AS REQUIRED IN THE FIELD TO PREVENT INTERMINGLING WITH UNDERLYING SUBSOIL OR OTHER WASTE MATERIALS. STOCKPILE TOPSOIL AWAY FROM EXCAVATIONS WITHOUT INTERMINGLING WITH SUBSOIL AND GRADE STOCKPILES TO DRAIN SURFACE WATER.
 - 3. REMOVE EXISTING ABOVE AND BELOW-GRADE IMPROVEMENTS AS INDICATED AND NECESSARY TO FACILITATE NEW CONSTRUCTION.
 - 4. PROTECT SUBGRADES AND FOUNDATION SOILS FROM FREEZING TEMPERATURES, FROST, AND PONDING WATER.
 - 5. EXCAVATE TO INDICATED ELEVATIONS AND DIMENSIONS FOR ALL STRUCTURES, WALKS, PAVEMENTS, AND UTILITY TRENCHES.
 - 6. CONTRACTOR SHALL FURNISH AND OPERATE ALL Dewatering MEASURES REQUIRED TO FACILITATE NEW CONSTRUCTION AND IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
 - 7. PROOF ROLL SUBGRADE BELOW BUILDING PAVEMENTS WITH A PNEUMATIC-TIRED DUMP TRUCK TO IDENTIFY SOFT POCKETS AND AREAS OF EXCESS YIELDING. DO NOT PROOF ROLL WET OR SATURATED SUBGRADES. RECONSTRUCT SUBGRADES DAMAGED BY FREEZING TEMPERATURES, FROST, RAIN, ACCUMULATED WATER, OR CONSTRUCTION ACTIVITIES AS DIRECTED BY ENGINEER OR OWNER REPRESENTATIVE, WITHOUT ADDITIONAL COMPENSATION.
 - 7. BACKFILL ALL UTILITY TRENCHES BENEATH PAVEMENT (AND WITHIN 5") WITH GRANULAR MATERIAL.
 - 8. SOIL FILL: USE SATISFACTORY SOIL MATERIAL UNDER ALL WALKS, PAVEMENTS, STEPS, RAMPS, BUILDING SLABS, FOOTINGS, AND FOUNDATIONS.
 - 9. UNIFORMLY MOISTEN OR AERATE SUBGRADE AND EACH SUBSEQUENT FILL OR BACKFILL SOIL LAYER BEFORE COMPACTION TO WITHIN 2 PERCENT OF OPTIMUM MOISTURE CONTENT. DO NOT PLACE BACKFILL OR FILL SOIL MATERIAL ON SURFACES THAT ARE MUDDY, FROZEN, OR CONTAIN FROST OR ICE. REMOVE AND REPLACE, OR SCARIFY AND AIR DRY, OTHERWISE SATISFACTORY SOIL MATERIAL THAT EXCEEDS OPTIMUM MOISTURE CONTENT BY 2 PERCENT AND IS TOO WET TO COMPACT TO SPECIFIED UNIT WEIGHT.
 - 10. COMPACTION OF SOIL BACKFILLS AND FILLS: COMPACT ALL FILL MATERIALS BELOW STRUCTURES, PAVEMENTS, WALKS, UTILITY TRENCHES, AND STEPS (AND WITHIN 5 FEET OF SAID AREAS) TO 98 PERCENT OF THE MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D 698 (STANDARD PROCTOR DENSITY). COMPACT ALL FILL MATERIALS BELOW TYPED OR UNPAVED AREAS TO 90 PERCENT OF THE MAXIMUM DRY UNIT WEIGHT ACCORDING TO ASTM D 698 (STANDARD PROCTOR DENSITY). ALL FILL MATERIALS TO BE COMPACTED IN MAXIMUM 8-INCH LIFTS.
 - 11. SITE ROUGH GRADING: SLOPE GRADES TO DIRECT WATER AWAY FROM BUILDINGS AND TO PREVENT PONDING. FINISH SUBGRADES TO REQUIRED ELEVATIONS WITHIN THE FOLLOWING TOLERANCES:
 - i. TURF OR UNPAVED AREAS: PLUS OR MINUS 1 INCH
 - ii. WALKS: PLUS OR MINUS 1/2 INCH
 - iii. PAVEMENTS: PLUS OR MINUS 1/2 INCH
 - iv. INSIDE BUILDING LINES: FINISH SUBGRADE TO A TOLERANCE OF 1/2 INCH WHEN TESTED WITH A 10-FOOT STRAIGHTEDGE.
 - 12. QUALITY CONTROL: QUALIFIED GEOTECHNICAL ENGINEER TO BE ENGAGED AS TESTING AGENCY AS DIRECTED BY OWNER.
 - 13. REPAIR AND REESTABLISH GRADES TO SPECIFIED TOLERANCES WHERE COMPLETED OR PARTIALLY COMPLETED SURFACES BECOME ERODED, RUTTED, SETTLED, OR WHERE THEY LOSE COMPACTION DUE TO SUBSEQUENT CONSTRUCTION OPERATIONS OR WEATHER.

STORM SEWER:

- A. GENERAL
 - 1. STORM SEWER INCLUDES ALL PIPES, FITTINGS, MANHOLES, CLEANOUTS, TRANSITION COUPLINGS, CATCH BASINS, INLETS, END SECTIONS, AND OUTLETS.
 - 2. THE CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING OF ANY CHANGES, ERRORS, OR OMISSIONS FOUND ON THE PLANS OR IN THE FIELD, BEFORE WORK IS STARTED OR RESUMED.
 - 3. CONTRACTOR SHALL LOCATE, IDENTIFY, DISCONNECT, AND SEAL OR CAP UTILITIES INDICATED TO BE REMOVED OR ABANDONED IN PLACE. DO NOT INTERRUPT UTILITIES SERVING FACILITIES OCCUPIED BY OWNER UNLESS PERMISSION IS GRANTED. NOTIFY OWNER AT LEAST TWO DAYS IN ADVANCE OF PROPOSED UTILITY INTERRUPTIONS.
- B. PRODUCTS
 - 1. PE PIPE AND FITTINGS: PE DRAINAGE PIPE AND FITTINGS NP 3 TO NPS 10, AASHTO M 252M, TYPE S, WITH SMOOTH WATERWAY FOR COUPLING JOINTS. PE DRAINAGE PIPE AND FITTINGS NPS 12 TO NPS 60, AASHTO M 294M, TYPE S, WITH SMOOTH WATERWAY FOR COUPLING JOINTS.
 - 2. PVC PIPE AND FITTINGS: PIPE: ASTM F 949, PVC, CORRUGATED PIPE WITH BELL AND SPIGOT ENDS FOR GASKETED JOINTS. FITTINGS: ASTM 949, PVC MOLDED OR FABRICATED, SOCKET TYPE. GASKETS: ASTM F 477, ELASTOMERIC SEALS.
 - 3. CONCRETE PIPE AND FITTINGS: REINFORCED CONCRETE SEWER PIPE AND FITTINGS MEETING ASTM C 76 WITH BELL AND SPIGOT ENDS AND GASKETED JOINTS WITH ASTM C 443 RUBBER GASKETS. PIPE TO BE CLASS III UNLESS OTHERWISE INDICATED ON PLANS.
 - 4. COMPLY WITH ASTM C 1173, ELASTOMERIC SLEEVE-TYPE REDUCING OR TRANSITION COUPLING, FOR JOINTING UNDERGROUND NON-PRESSURE PIPING. INCLUDE ENDS OF SAME SIZES AS PIPING TO BE JOINED, AND CORROSION-RESISTANT METAL TENSION BAND AND TIGHTENING MECHANISM ON EACH END.
 - 5. CLEANOUTS: CAST IRON CLEANOUTS: ASME H112.36.2M ROUND, GRAY-IRON HOUSING WITH CLAMPING DEVICE AND ROUND, SLOPED, SCOURATED, GRAY-IRON COVER. HEAVY DUTY TOP LOADING IS REQUIRED. PLASTIC CLEANOUTS: PVC BODY WITH PVC THREADED PLUG.
 - 6. MANHOLES AND CATCH BASINS: STANDARD REINFORCED PRECAST CONCRETE MANHOLES MEETING ASTM C 478. MINIMUM 48-INCH DIAMETER UNLESS OTHERWISE INDICATED. BASE SECTION TO BE MINIMUM 6-INCH THICKNESS AND 4-INCH THICKNESS FOR WALLS AND BASE SECTION. REINFORCED CONCRETE GRADE RINGS: 8-9 INCH TOTAL THICKNESS, TO MATCH DIAMETER OF MANHOLE FRAME AND COVER. MANHOLE FRAMES AND COVERS AS INDICATED ON DRAWINGS. PIPE CONNECTORS SHOULD BE PROVIDED TO MEET ASTM C293, RESILIENT, OF SIZE REQUIRED, FOR EACH PIPE CONNECTING TO THE BASE SECTION.
 - 7. CONCRETE: CAST-IN-PLACE CONCRETE ACCORDING TO ACI 318 AND ACI 350/350R AND IN ACCORDANCE WITH THE FOLLOWING:
 - i. CEMENT: ASTM C 150, TYPE III
 - ii. FINE AGGREGATE: ASTM C 33, SAND
 - iii. COARSE AGGREGATE: ASTM C 33, CRUSHED GRAVEL
 - iv. WATER: POTABLE
 - 8. PORTLAND CEMENT DESIGN MIX: 4000 PSI MINIMUM WITH 0.45 MAXIMUM WATER/CEMENTIOUS MATERIALS RATIO. REINFORCING FABRIC TO MEET ASTM A 185/A 185M, STEEL, WELDED WIRE FABRIC, PLAIN. REINFORCING BARS TO MEET ASTM A 615/A 615M, GRADE 60 DEFORMED STEEL.
 - 9. MANHOLE CHANNELS TO BE FORMED WITH AN INVERT SLOPE OF 2 PERCENT THROUGH THE MANHOLE AND BENCHES AT A 4 PERCENT, SLOPED TO DRAIN INTO CHANNEL.
 - 10. INLETS: PROVIDE INLETS WITH HEAVY DUTY CASTINGS AS SHOWN ON DRAWINGS.
 - 11. OUTLETS: CONCRETE END SECTION SHOULD BE PROVIDED AT ALL PIPE ENDS AND AS INDICATED ON DRAWINGS. RIP RAP APRONS TO BE INSTALLED AT ALL END SECTIONS TO DIMENSIONS INDICATED. AVERAGE RIP-RAP SIZE TO BE 6-INCHES UNLESS OTHERWISE INDICATED ON DRAWINGS.
- C. EXECUTION
 - 1. INSTALL PIPING BEGINNING AT LOW POINT, TRUE TO GRADES AND ALIGNMENT INDICATED WITH UNBROKEN CONTINUITY OF INVERT. PLACE BELL ENDS OF PIPING UPSTREAM. INSTALL GASKETS, SEALS, SLEEVES, AND OTHER COUPLINGS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.
 - 2. WHEN INSTALLING PIPE UNDER STREETS OR OTHER OBSTRUCTIONS THAT CANNOT BE DISTURBED, USE PIPE-JACKING PROCESS OF MICRO-TUNNELING.
 - 3. INSTALL PIPING PITCHED DOWN IN DIRECTION OF FLOW. INSTALL PE CORRUGATED SEWER PIPING IN ACCORDANCE WITH ASTM D 2231. INSTALL PVC PIPING ACCORDING TO ASTM D 2321 AND ASTM F 1668. INSTALL REINFORCED CONCRETE SEWER PIPING IN ACCORDANCE WITH ASTM C 1479 AND ACPA'S "CONCRETE PIPE INSTALLATION MANUAL."
 - 4. PIPE JOINT CONSTRUCTION: JOIN CORRUGATED PE PIPE ACCORDING TO ASTM D 3212 FOR PUSH ON JOINTS. JOIN PVC CORRUGATED SEWER PIPING IN ACCORDANCE WITH ASTM D 2321 FOR ELASTOMERIC-SEAL JOINTS. JOIN REINFORCED CONCRETE PIPE ACCORDING TO ACPA'S "CONCRETE PIPE INSTALLATION MANUAL" FOR RUBBER-GASKETED JOINTS. JOIN DISSIMULAR PIPE MATERIALS WITH NON-PRESSURE TYPE FLEXIBLE COUPLINGS.
 - 5. CONTRACTOR TO INSPECT INTERIOR OF PIPE AND MANHOLES FOR DEFECTS. DEFECTS REQUIRING CORRECTION INCLUDE THE FOLLOWING:
 - i. ALIGNMENT: LESS THAN FULL DIAMETER OF INSIDE OF PIPE IS VISIBLE BETWEEN STRUCTURES.
 - ii. DEFLECTION: FLEXIBLE PIPING WITH DEFLECTION THAT PREVENTS PASSAGE OF BALL OR CYLINDER OF SIZE NOT LESS THAN 92.5 PERCENT OF PIPING DIAMETER.
 - iii. DAMAGE: CRUSHED, BROKEN, CRACKED, OR OTHERWISE DAMAGED PIPING.
 - iv. INFILTRATION: WATER LEAKAGE INTO PIPING.
 - v. EXFILTRATION: WATER LEAKAGE FROM OR AROUND PIPING.

STORM SEWER (CONT.):

- REPLACE DEFECTIVE PIPING WITH NEW MATERIALS, AND REPEAT INSPECTION UNTIL DEFECTS ARE WITHIN ALLOWANCES SPECIFIED.
- 6. TEST NEW PIPING SYSTEMS, AND PARTS OF EXISTING SYSTEMS THAT HAVE BEEN ALTERED, EXTENDED, REPAIRED, FOR LEAKS AND DEFECTS. FOR GRAVITY FLOW STORM DRAINAGE PIPING: TEST ACCORDING TO REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION. LINE-B, AND PROCEED DOWNWARD.
 - i. EXCEPTION: PIPING WITH SOLIGHT JOINTS UNLESS REQUIRED BY AUTHORITIES HAVING JURISDICTION.
 - ii. OPTION: TEST PIPE AND JOINTS TO ASTM F 1417
 - iii. OPTION: TEST CONCRETE PIPING ACCORDING TO ASTM C 924
 - 7. SUBMIT TESTING REPORTS AS REQUIRED BY OWNER OR AUTHORITY HAVING JURISDICTION.
- ASPHALT PAVING:**
- A. GENERAL
 - 1. THE CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING OF ANY CHANGES, ERRORS, OR OMISSIONS FOUND ON THE PLANS OR IN THE FIELD, BEFORE WORK IS STARTED OR RESUMED.
 - 2. USE MATERIALS AND GRADATIONS THAT HAVE PERFORMED SATISFACTORYLY IN PREVIOUS INSTALLATIONS.
- B. PRODUCTS
 - 1. AGGREGATES
 - i. COURSE AGGREGATE: ASTM D 692/D92M, SOUND; ANGULAR CRUSHED STONE, CRUSHED GRAVEL, OR CURED, CRUSHED BLAST-FURNANCE SLAG.
 - ii. FINE AGGREGATE: ASTM D 1073 OR AASHTO M 29, SHARP-EDGED NATURAL SAND OR SAND PREPARED FROM STONE, GRAVEL, CURED BLAST-FURNANCE SLAG, OR COMBINATIONS THEREOF.
 - a. FOR HOT-MIX ASPHALT, LIMIT NATURAL SAND TO A MAXIMUM OF 20 PERCENT BY WEIGHT OF THE TOTAL AGGREGATE MASS.
 - iii. MINERAL FILLER: ASTM D 242 OR AASHTO M 17, ROCK OR SLAG DUST, HYDRAULIC CEMENT, OR OTHER INERT MATERIAL.
 - 2. ASPHALT MATERIALS
 - i. ASPHALT BINDER: AASHTO M 320, PG 64-22 (OR AS OTHERWISE RECOMMENDED BY INDOT STANDARDS)
 - ii. ASPHALT CEMENT: PER INDOT STANDARDS
 - iii. CUTBACK PRIME COAT: PER INDOT STANDARDS
 - iv. EMULSIFIED ASPHALT PRIME COAT: PER INDOT STANDARDS
 - v. TACK COAT: PER INDOT STANDARDS
 - vi. WATER: POTABLE
 - vii. UNDERSEALING ASPHALT: ASTM D 3141; PUMPING CONSISTENCY.
 - 3. AUXILIARY MATERIALS
 - i. RECYCLED MATERIALS FOR HOT-MIX ASPHALT MIXES: RECLAIMED ASPHALT PAVEMENT; RECLAIMED, UNBOUND AGGREGATE BASES; RECYCLED ASPHALT SHINGLES FROM SOURCES AND GRADATIONS THAT HAVE PERFORMED SATISFACTORYLY IN PREVIOUS INSTALLATIONS, EQUAL TO PERFORMANCE OF REQUIRED HOT-MIX ASPHALT PAVING PRODUCED FROM ALL NEW MATERIALS.
 - ii. HERBICIDE: COMMERCIAL CHEMICAL FOR WEED CONTROL, REGISTERED BY THE EPA, AND NOT CLASSIFIED AS "RESTRICTED USE" FOR LOCATIONS AND CONDITIONS OF APPLICATION. PROVIDE IN GRANULAR, LIQUID, OR WETTABLE POWDER FORM.
 - iii. SAND: ASTM D 1073 OR AASHTO M 29, GRADE NO. 2 OR NO. 3.
 - 4. MIXES
 - i. RECYCLED CONTENT OF HOT-MIX ASPHALT: PER INDOT STANDARDS
 - ii. HOT-MIX ASPHALT: DENSE-GRADED, HOT-LAD, HOT-MIX ASPHALT PLANT MIXES APPROVED BY INDOT AND COMPLYING WITH THE FOLLOWING REQUIREMENTS:
 - a. PROVIDE MIXES WITH A HISTORY OF SATISFACTORY PERFORMANCE IN GEOGRAPHICAL AREA WHERE PROJECT IS LOCATED.
 - b. BASE COURSE: 25.0 MM OR 19.0 MM (AS INDICATED ON DRAWINGS)
 - c. SURFACE COURSE: 9.5MM
- C. EXECUTION
 - 1. EXAMINATION
 - i. VERIFY THAT SUBGRADE IS DRY AND IN SUITABLE CONDITION TO BEGIN PAVING.
 - ii. PROOF-ROLL SUBGRADE BELOW PAVEMENTS WITH HEAVY PNEUMATIC-TIRED EQUIPMENT TO IDENTIFY SOFT POCKETS AND AREAS OF EXCESS YIELDING. DO NOT PROOF-ROLL WET OR SATURATED SUBGRADES. PROOFROLL TO BE PERFORMED BY QUALIFIED GEOTECHNICAL ENGINEER.
 - a. COMPLETELY PROOF-ROLL SUBGRADE IN ONE DIRECTION LIMIT VEHICLE SPEED TO 3 MPH.
 - b. PROOF ROLL WITH A LOADED 10-WHEEL, TANDUM-AXLE DUMP TRUCK WEIGHING NOT LESS THAN 15 TONS
 - c. INDICATE SOFT SPOTS, UNSATISFACTORY SOILS, AND AREAS OF EXCESSIVE PUMPING OR RUTTING, AS DETERMINED BY ENGINEER, AND REPLACE WITH COMPACTED BACKFILL OR FILL AS DIRECTED.
 - d. PROCEED WITH PAVING ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
 - 2. SURFACE PREPARATION
 - i. GENERAL: IMMEDIATELY BEFORE PLACING ASPHALT MATERIALS, REMOVE LOOSE AND DELETERIOUS MATERIAL FROM SUBSTRATE SURFACES. ENSURE THAT PREPARED SUBGRADE IS READY TO RECEIVE PAVING.
 - ii. HERBICIDE TREATMENT: APPLY HERBICIDE ACCORDING TO MANUFACTURER'S RECOMMENDED RATES AND WRITTEN APPLICATION INSTRUCTIONS. APPLY TO DRY, PREPARED SUBGRADE OR SURFACE OF COMPACTED-AGGREGATE BASE BEFORE APPLYING PAVING MATERIALS.
 - a. MIX HERBICIDE WITH PRIME COAT IF FORMULATED BY MANUFACTURER FOR THAT PURPOSE.
 - iii. CUTBACK PRIME COAT: APPLY UNIFORMLY OVER SURFACE OF COMPACTED UNBOUND-AGGREGATE BASE COURSE AT A RATE OF 0.15 TO 0.50 GAL./SQ. YD. APPLY ENOUGH MATERIAL TO PENETRATE AND SEAL, BUT NOT FLOOD, SURFACE. ALLOW PRIME COAT TO CURE.
 - a. IF PRIME COAT IS NOT ENTIRELY ABSORBED WITHIN 24 HOURS AFTER APPLICATION, SPREAD SAND OVER SURFACE TO BLOT EXCESS ASPHALT. USE EXCESSIVE SAND TO PREVENT PICKUP UNDER TRAFFIC. REMOVE LOOSE SAND BY SWEEPING BEFORE PAVEMENT IS PLACED AND AFTER VOLATILES HAVE EVAPORATED.
 - iv. TACK COAT: APPLY UNIFORMLY TO SURFACES OF EXISTING PAVEMENT AT A RATE OF 0.05 TO 0.15 GAL./SQ. YD.
 - a. ALLOW TACK COAT TO CURE UNDISTURBED BEFORE APPLYING HOT-MIX ASPHALT PAVING.
 - b. AVOID SMEARING OR STAINING ADJOINING SURFACES, AND SURROUNDINGS. REMOVE SPILLS AND CLEAN AFFECTED SURFACES.
 - 3. PLACING HOT-MIX ASPHALT
 - i. MACHINE PLACED HOT-MIX ASPHALT ON PREPARED SURFACE, SPREAD UNIFORMLY, AND STRIKE OFF. PLACE ASPHALT MIX BY HAND IN AREAS INACCESSIBLE TO EQUIPMENT IN A MANNER THAT PREVENTS SEGREGATION OF MIX. PLACE EACH COURSE TO THE REQUIRED GRADE, COURSE OR THICKNESS WHEN COMPACTED.
 - a. PLACE HOT-MIX ASPHALT BASE COURSE IN NUMBER OF LIFTS AND THICKNESSES INDICATED.
 - b. PLACE EACH COURSE IN SINGLE LIFT.
 - c. SPREAD MIX AT A MINIMUM TEMPERATURE OF 250 DEE. F.
 - d. BEGIN APPLYING MIX ALONG CENTERLINE OF CROWN FOR CROWNED SECTIONS AND ON HIGH SIDE OF ONE-WAY SLOPES UNLESS OTHERWISE INDICATED.
 - e. REGULATE PAYER MACHINE SPEED TO OBTAIN SMOOTH, CONTINUOUS SURFACE FREE OF PULLS AND TEARS IN ASPHALT-PAVING MAT.
 - ii. PLACE PAVING IN CONSECUTIVE STRIPS NOT LESS THAN 10 FEET WIDE UNLESS INFILL EDGE STRIPS OF A LESSER WIDTH ARE REQUIRED.
 - a. AFTER FIRST STRIP HAS BEEN PLACED AND ROLLED, PLACE SUCCEEDING STRIPS AND EXTEND ROLLING TO OVERLAP PREVIOUS STRIPS. OVERLAP MIX PLACEMENT ABOUT 1 TO 1-1/2 INCHES FROM STRIP TO STRIP TO ENSURE PROPER COMPACTION OF MIX ALONG LONGITUDINAL JOINTS.
 - b. COMPLETE A SECTION OF ASPHALT BASE COURSE BEFORE PLACING ASPHALT SURFACE COURSE.
 - iii. PROMPTLY CORRECT SURFACE IRREGULARITIES IN PAVING COURSE BEHIND PAYER. USE SUITABLE HAND TOOLS TO REMOVE EXCESS MATERIAL FORMING HIGH SPOTS. FILL DEPRESSIONS WITH HOT-MIX ASPHALT TO PREVENT SEGREGATION OF MIX. USE SUITABLE HAND TOOLS TO SMOOTH SURFACE.
 - 4. JOINTS
 - i. CONSTRUCT JOINTS TO ENSURE A CONTINUOUS BOND BETWEEN ADJOINING PAVING SECTIONS. CONSTRUCT JOINTS FREE OF DEPRESSIONS, WITH SAME TEXTURE AND SMOOTHNESS AS OTHER SECTIONS OF HOT-MIX ASPHALT COURSE.
 - a. CLEAN CONTACT SURFACES AND APPLY TACK COAT TO JOINTS.
 - b. OFFSET LONGITUDINAL JOINTS, IN SUCCESSIVE COURSES, A MINIMUM OF 6 INCHES
 - c. OFFSET TRANSVERSE JOINTS, IN SUCCESSIVE COURSES, A MINIMUM OF 24 INCHES
 - d. CONSTRUCT TRANSVERSE JOINTS AT EACH POINT WHERE PAYER ENDS A DAY'S WORK AND RESUMES WORK AT A SUBSEQUENT TIME. CONSTRUCT THESE JOINTS USING EITHER "BULKHEAD" OR "PAPERED" METHOD ACCORDING TO AI MS-22, FOR BOTH "ENDING A LANE" AND "RESUMPTION OF PAVING OPERATIONS."
 - e. COMPACT JOINTS AS SOON AS HOT-MIX ASPHALT WILL BEAR ROLLER WEIGHT WITHOUT EXCESSIVE DISPLACEMENT.
 - f. COMPACT ASPHALT AT JOINTS TO A DENSITY WITHIN 2 PERCENT OF SPECIFIED COURSE DENSITY.
 - ii. COMPACTION
 - i. GENERAL: BEGIN COMPACTION AS SOON AS PLACED HOT-MIX PAVING WILL BEAR ROLLER WEIGHT WITHOUT EXCESSIVE DISPLACEMENT. COMPACT HOT-MIX PAVING WITH HOT, HAND TAMBERS OR WITH VIBRATORY-PLATE COMPACTORS IN AREAS INACCESSIBLE TO ROLLERS.
 - ii. COMPLETE COMPACTION BEFORE MIX TEMPERATURE COOLS TO 185 DEG F
 - iii. BREAKDOWN ROLLING: COMPLETE BREAKDOWN OR INITIAL ROLLING IMMEDIATELY AFTER ROLLING JOINTS AND OUTSIDE EDGE. EXAMINE SURFACE IMMEDIATELY AFTER BREAKDOWN ROLLING FOR INDICATED CROWN, GRADE, AND SMOOTHNESS. CORRECT LAYOUT AND ROLLING OPERATIONS TO COMPLY WITH REQUIREMENTS.
 - iii. INTERMEDIATE ROLLING: BEGIN INTERMEDIATE ROLLING IMMEDIATELY AFTER BREAKDOWN ROLLING WHILE HOT-MIX ASPHALT IS STILL HOT ENOUGH TO ACHIEVE SPECIFIED DENSITY. CONTINUE ROLLING UNTIL HOT-MIX ASPHALT COURSE HAS BEEN UNIFORMLY COMPACTED TO THE FOLLOWING DENSITY:
 - a. AVERAGE DENSITY: 98 PERCENT OF REFERENCE LABORATORY DENSITY ACCORDING TO ASTM D 6927 OR AASHTO T 246, BUT NOT LESS THAN 94 PERCENT OR GREATER THAN 100 PERCENT.
 - b. AVERAGE DENSITY: 92 PERCENT OF REFERENCE MAXIMUM THEORETICAL DENSITY ACCORDING TO ASTM D 2041, BUT NOT LESS THAN 90 PERCENT OR GREATER THAN 98 PERCENT.
 - iv. FINISH ROLLING: FINISH ROLL PAVED SURFACES TO REMOVE ROLLER MARKS WHILE HOT-MIX ASPHALT IS STILL WARM.
 - v. EDGE SHAPING: WHILE SURFACE IS BEING COMPACTED AND FINISHED, TRIM EDGES OF PAVEMENT TO PROPER ALIGNMENT. BEVEL EDGES WHILE ASPHALT IS STILL HOT. COMPACT THOROUGHLY.
 - vi. REPAIRS: REMOVE PAVED AREAS THAT ARE DEFECTIVE OR CONTAMINATED WITH FOREIGN MATERIALS AND REPLACE WITH FRESH, HOT-MIX ASPHALT. COMPACT BY ROLLING TO SPECIFIED DENSITY AND SURFACE SMOOTHNESS.
 - viii. PROTECTION: AFTER FINAL ROLLING, DO NOT PERMIT VEHICULAR TRAFFIC ON PAVEMENT UNTIL IT HAS COOLED AND HARDENED.
 - viii. ERECT BARRICADES TO PROTECT PAVING FROM TRAFFIC UNTIL MIXTURE HAS COOLED ENOUGH NOT TO BECOME PLACED.
 - 6. INSTALLATION TOLERANCES
 - i. PAVEMENT THICKNESS: COMPACT EACH COURSE TO PRODUCE THE THICKNESS INDICATED WITHIN THE FOLLOWING TOLERANCES:
 - a. BASE COURSE: PLUS OR MINUS 1/2 INCH
 - b. SURFACE COURSE: PLUS 1/4 INCH NO MINUS.
 - ii. PAVEMENT SURFACE SMOOTHNESS: COMPACT EACH COURSE TO PRODUCE A SURFACE SMOOTHNESS WITHIN THE FOLLOWING TOLERANCES AS DETERMINED BY USING A 10-FOOT STRAIGHTEDGE APPLIED TRANSVERSELY OR LONGITUDINALLY TO PAVED AREAS:
 - a. BASE COURSE: 1/4 INCH
 - b. SURFACE COURSE: 1/8 INCH
 - c. CROWNED SURFACES: TEST WITH CROWNED TEMPLATE CENTERED AND AT RIGHT ANGLE TO CROWN. MAXIMUM ALLOWABLE VARIANCE FROM TEMPLATE IS 1/4 INCH.
 - 7. FIELD QUALITY CONTROL
 - i. TESTING AGENCY: CONTRACTOR TO ENGAGE A QUALIFIED TESTING AGENCY TO PERFORM TESTS AND INSPECTIONS.
 - ii. THICKNESS: IN-PLACE COMPACTED THICKNESS OF HOT-MIX ASPHALT COURSES WILL BE DETERMINED ACCORDING TO ASTM D 3549.
 - iii. SURFACE SMOOTHNESS: FINISHED SURFACE OF EACH HOT-MIX ASPHALT COURSE WILL BE TESTED FOR COMPLIANCE WITH SMOOTHNESS TOLERANCES.
 - iv. IN-PLACE DENSITY: TESTING AGENCY WILL TAKE SAMPLES OF UNCOMPACTED PAVING MIXTURES AND COMPACTED PAVEMENT ACCORDING TO ASTM D 679 OR AASHTO T 188.
 - a. REFERENCE MAXIMUM THEORETICAL DENSITY WILL BE DETERMINED BY AVERAGING RESULTS FROM FOUR SAMPLES OF HOT-MIX ASPHALT-PAVING MIXTURE DELIVERED DAILY TO SITE, PREPARED ACCORDING TO ASTM D 2041, AND COMPACTED ACCORDING TO JOB-MIX SPECIFICATIONS.
 - b. IN-PLACE DENSITY OF COMPACTED PAVEMENT WILL BE DETERMINED BY TESTING CORE SAMPLES ACCORDING TO ASTM D 1188 OR ASTM D 2726.
 - v. ONE CORE SAMPLE WILL BE TAKEN FOR EVERY 1000 SQ. YD. OR LESS OF INSTALLED PAVEMENT, WITH NO FEWER THAN THREE CORES TAKEN.
 - vi. FIELD DENSITY OF IN-PLACE COMPACTED PAVEMENT MAY ALSO BE DETERMINED BY NUCLEAR METHOD ACCORDING TO ASTM D 2950 AND CORRELATED WITH ASTM D 1188 OR ASTM D 2726.
 - vii. REPLACE ANY COMPACTED HOT-MIX ASPHALT WHERE CORE TESTS WERE TAKEN.
 - viii. REMOVE AND REPLACE OR INSTALL ADDITIONAL HOT-MIX ASPHALT WHERE TEST RESULTS OR MEASUREMENTS INDICATE THAT IT DOES NOT COMPLY WITH SPECIFIED REQUIREMENTS.

CONCRETE PAVING:

- A. GENERAL
 - 1. CONCRETE PAVING SECTION INCLUDES DRIVEWAYS, ROADWAYS, PARKING LOTS, CURBS AND GUTTERS, WALKS, AND CONCRETE APRONS.
- 2. ACTION SUBMITTALS
 - i. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.
 - ii. OTHER ACTION SUBMITTALS
 - a. DESIGN MIXTURES: FOR EACH CONCRETE PAVING MIXTURE. INCLUDE ALTERNATE DESIGN MIXTURES WHEN CHARACTERISTICS OF MATERIALS PROJECT CONDITIONS, WEATHER, TEST RESULTS, OR OTHER CIRCUMSTANCES WARRANT ADJUSTMENTS.
 - b. MATERIAL TEST REPORTS: FROM A QUALIFIED TESTING AGENCY INCLUDING AND INTERPRETING TEST RESULTS FOR COMPLIANCE OF THE FOLLOWING WITH REQUIREMENTS INDICATED, BASED ON COMPREHENSIVE TESTING OF CURRENT MATERIALS.
- 3. QUALITY ASSURANCE
 - i. READY-MIX-CONCRETE MANUFACTURER QUALIFICATIONS: A FIRM EXPERIENCED IN MANUFACTURING READY-MIXED CONCRETE PRODUCTS AND THAT COMPLIES WITH ASTM C 94/C 94M REQUIREMENTS FOR PRODUCTION FACILITIES AND EQUIPMENT.
 - ii. ACI PUBLICATIONS: COMPLY WITH ACI 301 (ACI 301M) UNLESS OTHERWISE INDICATED.
 - iii. HANDICAP STANDARDS: PROVIDE RAMPS INDICATED FOR HANDICAP ACCESS IN ACCORDANCE WITH ANSI A117 AND FEDERAL AMERICANS WITH DISABILITIES ACT (ADA).
- B. PRODUCTS
 - 1. STEEL REINFORCEMENT
 - i. RECYCLED CONTENT: POST CONSUMER RECYCLED CONTENT PLUS ONE-HALF OF PRECONSUMER RECYCLED CONTENT NOT LESS THAN 25 PERCENT.
 - ii. PLAIN-STEEL WELDED WIRE REINFORCEMENT: ASTM A 185/A 185M, FABRICATED FROM AS-DRAWN STEEL WIRE INTO FLAT SHEETS.
 - iii. DEFORMED-STEEL WELDED WIRE REINFORCEMENT: ASTM A 497/A 497M, FLAT SHEET.
 - iv. REINFORCING BARS: ASTM A 615/A 615M, GRADE 60 (GRADE 420); DEFORMED.
 - v. PLAIN-STEEL WIRE: ASTM A 82/A 82M, AS DRAWN.
 - vi. DEFORMED-STEEL WIRE: ASTM A 496/A 496M.
 - vii. DOWEL BARS: ASTM A 615/A 615M, GRADE 60 (GRADE 420) PLAIN-STEEL BARS, ZINC COATED (GALVANIZED) AFTER FABRICATION ACCORDING TO ASTM A 787/A 787M, CLASS I COATINGS. CUT BARS TRUE TO LENGTH WITH ENDS SQUARE AND FREE OF BURRS.
 - viii. BAR SUPPORTS: BOLSTERS, CHAIRS, SPACERS, AND OTHER DEVICES FOR SPACING, SUPPORTING, AND FASTENING REINFORCING BARS, WELDED WIRE REINFORCEMENT, AND DOWELS IN PLACE. MANUFACTURE BAR SUPPORTS ACCORDING TO CRSI'S "MANUAL OF STANDARD PRACTICE" FROM STEEL WIRE, PLASTIC, OR PRECAST CONCRETE OF GREATER COMPRESSIVE STRENGTH THAN CONCRETE SPECIFIED.
 - 2. CONCRETE MATERIALS
 - i. IDENTIFICATIVE MATERIAL: USE THE FOLLOWING CEMENTITIOUS MATERIALS, OF SAME TYPE, BRAND, AND SOURCE THROUGHOUT PROJECT:
 - a. PORTLAND CEMENT: ASTM C 150, PORTLAND CEMENT TYPE I.
 - b. FLY ASH: ASTM C 618, CLASS C OR CLASS F.
 - c. GROUND GRANULATED BLAST-FURNANCE SLAG: ASTM C 989, GRADE 100 OR 120.
 - ii. NORMAL-WEIGHT AGGREGATES: ASTM C 33, UNIFORMLY GRADED, AND AS FOLLOWS:
 - a. COMBINED AGGREGATE GRADATION: WELL GRADED FROM COARSEST TO FINEST WITH NOT MORE THAN 18 PERCENT AND NOT LESS THAN 8 PERCENT RETAINED ON A INDIVIDUAL SIEVE, EXPECT THAT LESS THAN 10 PERCENT MAY BE RETAINED ON COARSEST SIEVE AND ON NO. 50 SIEVE, AND LESS THAN 8 PERCENT MAY BE RETAINED ON SIEVES FINER THAN NO. 50.
 - b. USE CRUSHED LIMESTONE COARSE AGGREGATE FOR CONCRETE EXPOSED TO WEATHER.
 - c. WATER: POTABLE AND COMPLYING WITH ASTM C 94/C 94M.
 - iii. AIR-ENTRAINING ADMIXTURE: ASTM C 260.
 - iv. CHEMICAL ADMIXTURES: USE ADMIXTURES CERTIFIED BY MANUFACTURER TO BE COMPATIBLE WITH OTHER ADMIXTURES AND TO CONTAIN NOT MORE THAN 0.1 PERCENT WATER-SOLUBLE CHLORIDE IONS BY MASS OF CEMENTITIOUS MATERIAL.
 - v. NOTE: WHERE CLASS A, B, OR C CONCRETE IS REFERENCE IN PLANS OR SPECIFICATIONS, THE CLASS IS AS DEFINED IN ACI 347-04.
 - 3. CURING MATERIALS
 - i. ABSORPTIVE COVER: AASHTO M 182, CLASS 3, BURLAP CLOTH MADE FROM JUTE OR KENAF, WEIGHING APPROXIMATELY 1.0 LB./SQ. YD. (350 G./SQ. M)
 - ii. MOISTURE-RETAINING COVER: ASTM C 171, POLYETHYLENE FILM OR WHITE BURLAP-POLYETHYLENE SHEET.
 - iii. WATER: POTABLE
 - iv. EVAPORATION RETARDER: WATERBORNE, MONOMOLECULAR, FILM FORMING, MANUFACTURED FOR APPLICATION TO FRESH CONCRETE.
 - v. CLEAR, WATERBORNE, MEMBRANE-FORMING CURING COMPOUND: ASTM C 309, TYPE I, CLASS B, DISSIPATING.
 - vi. WHITE, WATERBORNE, MEMBRANE-FORMING CURING COMPOUND: ASTM C 309, TYPE 2, CLASS B, DISSIPATING.
 - 4. FIBER REINFORCEMENT
 - i. FIBROUS REINFORCEMENT: 100S VIRGIN HOMOPOLYMER POLYPROPYLENE MULTIFILAMENT FIBERS FOR SECONDARY REINFORCEMENT OF CONCRETE, ASTM C 116, TYPE III. SHALL CONTAIN NO REPROCESSED OLEFIN MATERIALS.
 - a. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING: FIBERMESH 150; PROPEX CONCRETE SYSTEMS CORP.; STEALTH FIBER MICRO REINFORCEMENT; SI CONCRETE SYSTEMS, OR APPROVED EQUAL
 - 5. RELATED MATERIALS
 - i. JOINT FILLERS: ASTM D 1751, ASPHALT-SATURATED CELLULOSIC FIBER OR ASTM D 1752, CORK OR SELF-EXPANDING CORK IN PREFORMED STRIPS.
 - ii. PENETRATING ANTI-SPALLING SEALER: THE SEALER SHALL BE A SILANE WATER BASED COMPOUND WHICH HAS A BENZOTRIAZOLONE SCREEN AND A REPELLENT FIBER OF 92% MINIMUM TESTED IN ACCORDANCE WITH NCHRP #244, TEST METHOD. IN ADDITION, THE SEALER-TREATED CONCRETE MUST EXHIBIT NO SOFTENING WHEN EXPOSED TO 120 CYCLES OF FREEZING-AND-THAWING IN ACCORDANCE WITH ASTM A C 672.
 - iii. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING: WEATHER WORKER HEAVY-DUTY WB (#-27 WB); DAYTON SUPERIOR CORP., "ENVROSEAL 250" HYDROZO INCORP., "PENTANE WB"; L & M CONSTRUCTION CHEMICALS, INC.
 - 6. CONCRETE MIXTURES
 - i. PREPARE DESIGN MIXTURES, PROPORTIONED ACCORDING TO ACI 301 (ACI 301M), WITH THE FOLLOWING PROPERTIES:
 - a. COMPRESSIVE STRENGTH (28 DAYS): 4000 PSI (27.6 MPA).
 - b. MAXIMUM WATER-CEMENTIOUS MATERIALS RATIO AT POINT OF PLACEMENT: 0.45.
 - c. SLUMP LIMIT: 12 INCHES (125 MM) PLUS OR MINUS 1 INCH (25 MM)
 - d. AIR CONTENT: 6.5 PERCENT PLUS OR MINUS 1.5 PERCENT.
 - ii. CHEMICAL ADMIXTURES: USE ADMIXTURES ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.
 - 7. CONCRETE MIXING
 - i. READY-MIXED CONCRETE: MEASURE, BATCH, AND MIX CONCRETE MATERIALS AND CONCRETE ACCORDING TO ASTM C 94/C 94M. FURNISH BATCH CERTIFICATES FOR EACH BATCH DISCHARGED AND USED IN THE WORK.
- B. EXECUTION
 - 1. EXAMINATION AND PREPARATION
 - i. PROOF-ROLL PREPARED SUBBASE SURFACE BELOW CONCRETE PAVING TO IDENTIFY SOFT POCKETS AND AREAS OF EXCESS YIELDING.
 - ii. REMOVE LOOSE MATERIAL FROM COMPACTED SUBBASE SURFACE IMMEDIATELY BEFORE PLACING CONCRETE.
 - 2. EDGE FORMS AND SCREED CONSTRUCTION
 - i. SET, BRACE, AND SECURE EDGE FORMS, BULKHEADS, AND INTERMEDIATE SCREED GUIDES TO REQUIRED LINES, GRADES, AND ELEVATIONS. INSTALL FORMS TO ALLOW CONTINUOUS PROGRESS OF WORK AND SO FORMS CAN REMAIN IN PLACE AT LEAST 24 HOURS AFTER CONCRETE PLACEMENT.
 - ii. CLEAN FORMS AFTER EACH USE AND COAT WITH FORM-RELEASE AGENT TO ENSURE SEPARATION FROM CONCRETE WITHOUT DAMAGE.
 - 3. STEEL REINFORCEMENT
 - i. GENERAL: COMPLY WITH CRSI'S "MANUAL OF STANDARD PRACTICE" FOR FABRICATING, PLACING, AND SUPPORTING REINFORCEMENT.
 - 4. JOINTS
 - i. GENERAL: FORM CONSTRUCTION, ISOLATION, AND CONTRACTION JOINTS AND TOOL EDGES TRUE TO LINE, WITH FACES PERPENDICULAR TO SURFACE PLANE OF CONCRETE. CONSTRUCT TRANSVERSE JOINTS AT RIGHT ANGLES TO CENTERLINE UNLESS OTHERWISE INDICATED.
 - ii. CONSTRUCTION JOINTS: SET CONSTRUCTION JOINTS AT SIDE AND END TERMINATIONS OF PAVING AND AT LOCATIONS WHERE PAVING OPERATIONS ARE STOPPED FOR MORE THAN ONE-HALF HOUR UNLESS PAVING TERMINATES AT ISOLATION JOINTS.
 - iii. ISOLATION JOINTS: FORM ISOLATION JOINTS OF PREFORMED JOINT-FILLER STRIPS ABUTTING CONCRETE CURBS, CATCH BASINS, MANHOLES, INLETS, STRUCTURES, OTHER FIXED OBJECTS, AND WHERE INDICATED.
 - iv. CONTRACTION JOINTS: FORM NEAKENED-PLANE CONTRACTION JOINTS. SECTIONING CONCRETE INTO AREAS AS INDICATED. CONSTRUCT CONTRACTION JOINTS FOR A DEPTH EQUAL TO AT LEAST ONE-FOURTH OF THE CONCRETE THICKNESS.
 - v. EDGING: AFTER INITIAL FLOATING, TOOL EDGES OF PAVING, CURBS, AND JOINTS IN CONCRETE WITH AN EDGING TOOL TO A 1/4-INCH (6-MM) RADIUS. REPEAT TOOLING OF EDGES AFTER APPLYING SURFACE FINISHES. ELIMINATE DAMPED-TOOL MARKS ON CONCRETE SURFACES.
 - 5. CONCRETE PLACEMENT
 - i. MOISTEN SUBBASE TO PROVIDE A UNIFORM DAMPED-CONDITION AT TIME CONCRETE IS PLACED. COMPLY WITH ACI 301 (ACI 301M) REQUIREMENTS FOR MEASURING, MIXING, TRANSPORTING, PLACING, AND CONSOLIDATING CONCRETE.
 - ii. DEPOSIT AND SPREAD CONCRETE IN A CONTINUOUS OPERATION BETWEEN TRANSVERSE JOINTS. DO NOT PUSH OR DRAG CONCRETE INTO PLACE OR USE VIBRATORS TO MOVE CONCRETE INTO PLACE.
 - iii. SCREED PAVING SURFACE WITH A STRAIGHTEDGE AND STRIKE OFF.
 - iv. COMMENCE INITIAL FLOATING COURSE OF FINISHES OR DORIES TO IMPART AN OPEN-TEXTURED AND UNIFORM SURFACE PLANE BEFORE EXCESS MOISTURE OR BLEED WATER APPEARS ON THE SURFACE. DO NOT FURTHER DISTURB CONCRETE SURFACES BEFORE BEGINNING FINISHING OPERATIONS OR SPREADING SURFACE TREATMENTS.

- 7. CONCRETE PROTECTION AND CURING
 - i. GENERAL: PROTECT FRESHLY PLACED CONCRETE FROM PREMATURE DRYING AND EXCESSIVE COLD OR HOT TEMPERATURES.
 - ii. COMPLY WITH ACI 308.1 FOR COLD-WEATHER PROTECTION.
 - iii. EVAPORATION RETARDER: APPLY EVAPORATION RETARDER TO CONCRETE SURFACES IF HOT, DRY, OR WINDY CONDITIONS CAUSE MOISTURE LOSS APPROACHING 0.2 LB./SQ. FT. X H (1 KG./SQ. M X H) BEFORE AND DURING FINISHING OPERATIONS. APPLY ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS AFTER PLACING, SCREEDING, AND BULL FLOATING OR DARNING CONCRETE BUT BEFORE FLOOR FINISHING.
 - iv. BEGIN CURING AFTER FINISHING CONCRETE BUT NOT BEFORE FREE WATER HAS DISAPPEARED FROM CONCRETE SURFACE.
 - v. CURING METHODS: CURE CONCRETE BY MOISTURE CURING, MOISTURE-RETAINING-COVER CURING, CURING COMPOUND, OR A COMBINATION OF THESE METHODS.
 - vi. PENETRATING, ANTI-SPALLING SEALER TREATMENT: APPLY COMPOUNDS TO CLEAN, DRY CONCRETE SURFACES FREE OF OIL, DIRT, AND OTHER FOREIGN MATERIAL ACCORDING TO MANUFACTURER'S SPECIFICATIONS. SEALER TO BE APPLIED TO ALL EXTERIOR CONCRETE PAVING AND CURBS AFTER CONCRETE HAS CURED 28 DAYS.
- 8. PAVING TOLERANCES
 - i. COMPLY WITH TOLERANCES IN ACI 117 AND AS FOLLOWS:
 - a. ELEVATION: 3/4 INCH (19 MM)
 - b. THICKNESS: PLUS 3/8 INCH (10 MM), MINUS 1/4 INCH (6 MM)
 - c. SURFACE: GAP BELOW 10-FOOT- (3-M-) LONG, UNLEVELLED STRAIGHTEDGE NOT TO EXCEED 1/2 INCH (13 MM)
 - d. JOINT SPACING: 3 INCHES (75 MM)
 - e. CONTRACTION JOINT DEPTH: PLUS 1/4 INCH (6 MM), NO MINUS.
 - f. JOINT WIDTH: PLUS 1/8 INCH (3 MM), NO MINUS
 - ii. APPLY PAINT WITH MECHANICAL EQUIPMENT TO PRODUCE MARKINGS OF DIMENSIONS INDICATED WITH UNIFORM, STRAIGHT EDGES. APPLY AT MANUFACTURER'S RECOMMENDED RATES TO PROVIDE A MINIMUM WET FILM THICKNESS OF 15 MILS (0.4 MM).
- 9. REPAIRS AND PROTECTION
 - i. REMOVE AND REPLACE CONCRETE PAVING THAT IS BROKEN, DAMAGED, OR DEFECTIVE OR THAT DOES NOT COMPLY WITH REQUIREMENTS OF THIS SECTION. REMOVE AND REPLACE SECTIONS FROM JOINT TO JOINT UNLESS OTHERWISE APPROVED BY ENGINEER.
 - ii. PROTECT CONCRETE PAVING FROM DAMAGE. EXCLUDE TRAFFIC FROM PAVING FOR AT LEAST 14 DAYS AFTER PLACEMENT. WHEN CONSTRUCTION TRAFFIC IS PERMITTED, MAINTAIN PAVING AS CLEAN AS POSSIBLE BY REMOVING SURFACE STAINS AND SPILLAGE OF MATERIALS AS THEY OCCUR.
 - iii. MAINTAIN CONCRETE PAVING FREE OF STAINS, DISCOLORATION, CRACKS, AND OTHER FOREIGN MATERIAL. SWEEP PAVING NOT MORE THAN TWO DAYS BEFORE DATE SCHEDULED FOR SUBSTANTIAL COMPLETION INSPECTIONS.

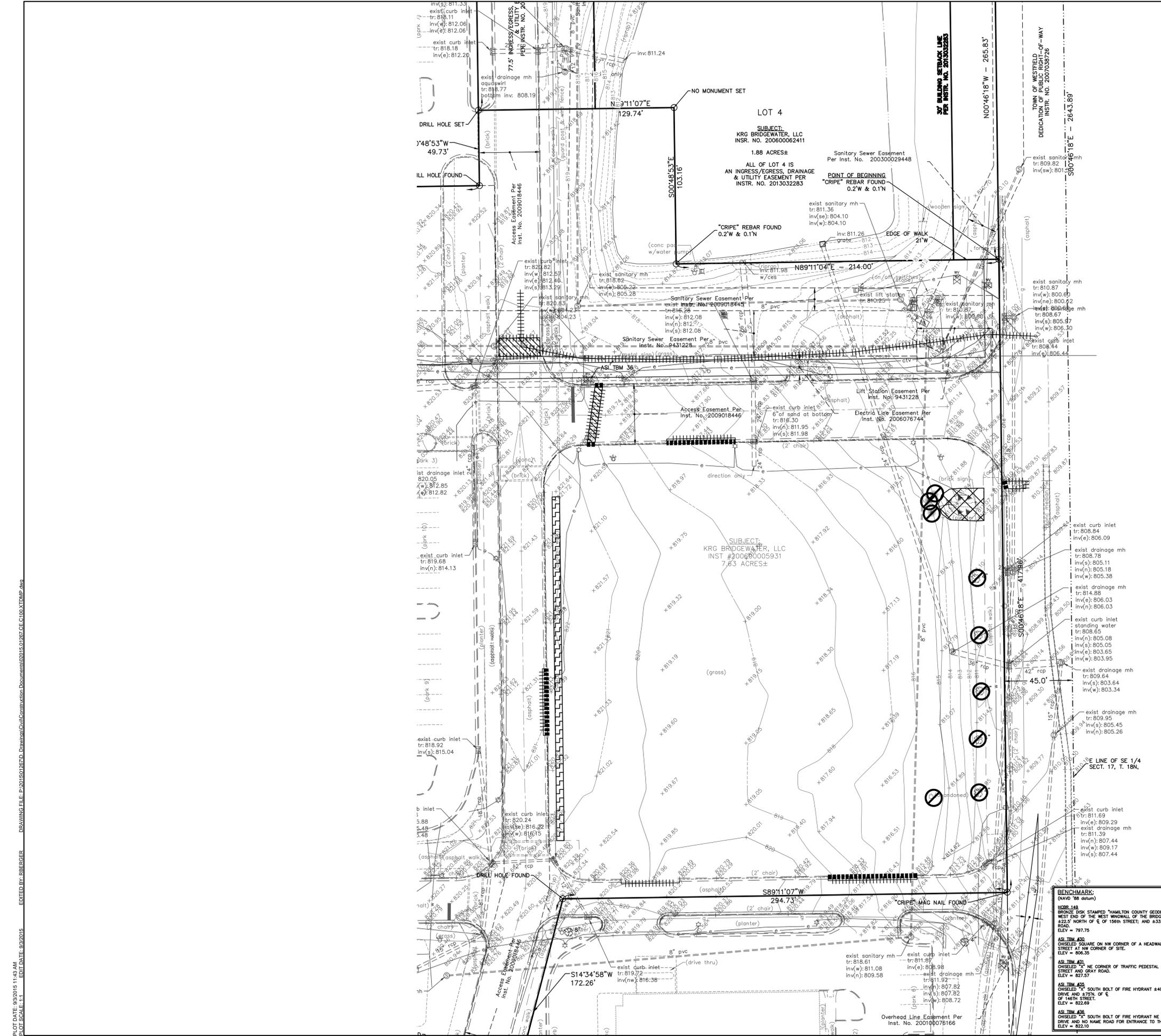


30 S. MERIDIAN ST., SUITE 100, INDIANAPOLIS, IN 46204



7260 Shadeland Station | Indianapolis, Indiana 46256
TEL 317.547.5580 | FAX 317.543.9270
www.structurepoint

PLOT DATE: 09/20/15 11:43 AM
 PLOT SCALE: 1:1
 EDIT DATE: 09/20/15
 DRAWING FILE: P:\2015\092015\2015092015\Drawings\Civil\Construction Documents\2015.092015.C100.XDIMP.dwg
 EDITOR: ARBERGER
 EXISTING TOPOGRAPHY - DEMOLITION PLAN



SCALE: 1"=30'

EXISTING LEGEND

	AIR CONDITIONER		POST
	BEEHIVE INLET		POWER POLE
	CURB INLET		SPRINKLER CONTROL VALVE
	CLEAN OUT		SIGN
	DRAINAGE MANHOLE		SANITARY MANHOLE
	ELECTRIC METER BOX		STAND PIPE
	ELECTRIC CROSS BOX		TELEPHONE HANDHOLE
	FLAG POLE		TELEPHONE MANHOLE
	FIRE HYDRANT		TELEPHONE MARKER SIGN
	FIRE VALVE SHUT OFF		TELEPHONE PEDESTAL
	GROUND LIGHT		TRANSFORMER
	GAS METER		TRAFFIC POLE
	GAS MARKER SIGN		TELEPHONE CROSS BOX
	GUY WIRE		VENT
	HOSE BIB		WELL
	INLET		WATER METER
	LID		CONCRETE END SECTION
	LIGHT POLE		OVERHEAD ELECTRIC LINE
	MAILBOX		OVERHEAD TELEPHONE LINE
	MANHOLE		REINFORCED CONCRETE PIPE
			REBAR SET = 5/8" DIA. REBAR W/CAP STAMPED "STRUCTUREPOINT - 0094" SET

DEMOLITION LEGEND

	OBJECTS TO BE ADJUSTED TO PROPOSED GRADE
	EXISTING CONCRETE TO BE REMOVED
	EXISTING ASPHALT TO BE REMOVED
	OBJECT TO BE REMOVED
	OBJECT TO BE RELOCATED
	CONCRETE CURB & GUTTER TO BE REMOVED
	PAVEMENT TO BE SAWCUT

LEGAL DESCRIPTION

Part of the Southeast Quarter of Section 17, Township 18 North, Range 4 East of the Second Principle Meridian, Hamilton County, Indiana, more particularly described as follows:

Commencing at the northeast corner of said Southeast Quarter; thence South 00 degrees 46 minutes 18 seconds East (basis of bearings per Instrument Number 20060005931, on file in the Office of the Recorder of Hamilton County, Indiana) 1,249.15 feet along the east line of said Southeast Quarter to the northeast corner of the 8,000-acre parcel conveyed in Instrument Number 200602411, on file in the Office of said Recorder; thence South 89 degrees 46 minutes 53 seconds West 45.00 feet along the north line of said 8,000-acre parcel to the west right-of-way line of Gray Road as described in Instrument Number 2007038726, on file in the Office of said Recorder; thence South 00 degrees 46 minutes 18 seconds East 585.64 feet along said west right-of-way line to the southeast corner of Lot 4 in Bridgewater Marketplace, per plat thereof, recorded as Instrument Number 2013032283 in the Office of said Recorder, being the POINT OF BEGINNING, thence continuing South 00 degrees 46 minutes 18 seconds East 47.86 feet along said west right-of-way line to the north line of the parcel conveyed to Gray Road Property LLC in Instrument Number 2006005203, on file in the Office of said Recorder, the following three (3) courses are along the north and west lines thereof: 1)thence South 89 degrees 11 minutes 07 seconds West 294.73 feet; 2)thence South 14 degrees 34 minutes 58 seconds West 172.26 feet; 3)thence South 00 degrees 46 minutes 53 seconds East 163.72 feet to the north right-of-way line of 146th Street as described in said Instrument Number 2007038726; thence South 89 degrees 40 minutes 59 seconds West 113.86 feet along said north right-of-way line to the southeast corner of the parcel conveyed to ACV Livermore, LLC in Instrument Number 2008043004, on file in the Office of said Recorder, the following four (4) courses are along the east and north lines thereof: 1)thence northeasterly 57.64 feet along a non-tangent curve to the left having a radius of 91.50 feet and subtended by a long chord having a bearing of North 32 degrees 37 minutes 55 seconds East and a length of 56.69 feet; 2)thence North 13 degrees 23 minutes 30 seconds East 96.21 feet; 3)thence North 14 degrees 54 minutes 58 seconds East 92.72 feet; 4)thence South 89 degrees 11 minutes 07 seconds West 242.35 feet to the west line of the parcel conveyed to KRG Bridgewater, LLC in Instrument Number 20060005931, on file in the Office of said Recorder; thence North 00 degrees 48 minutes 53 seconds West 570.24 feet along said west line to the southwest corner of the parcel conveyed to BD Schools Real Estate, LLC in Instrument Number 2009018447, the following two (2) courses are along the south and east lines thereof: 1)thence North 89 degrees 11 minutes 11 seconds East 273.77 feet; 2)thence North 00 degrees 48 minutes 53 seconds West 49.73 feet to a southwest corner of said Lot 4, the following three (3) courses are along the south and west lines thereof: 1)thence North 89 degrees 11 minutes 07 seconds East 129.74 feet; 2)thence South 00 degrees 48 minutes 53 seconds East 103.16 feet; 3)thence North 89 degrees 11 minutes 04 seconds East 214.00 feet to the POINT OF BEGINNING. Containing 7.63 acres, more or less.

GENERAL NOTES:

- CONTRACTOR SHALL PROTECT AND NOT DESTROY THE PROPERTY CORNER MONUMENTS DURING CONSTRUCTION.
- CONTRACTOR TO VERIFY LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES PRIOR TO COMMENCING ANY CONSTRUCTION. CONTACT ENGINEER IF VARIATION EXISTS.
- SEE SHEET C002 GENERAL NOTES FOR MORE INFORMATION.

CAUTION !!

THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED UPON ABOVE GROUND EVIDENCE (including, but not limited to, manholes, inlets, valves, and marks made upon the ground by others) AND ARE SPECULATIVE IN NATURE. THERE MAY ALSO BE OTHER EXISTING UNDERGROUND UTILITIES FOR WHICH THERE IS NO ABOVE GROUND EVIDENCE OR FOR WHICH THERE IS NO ABOVE GROUND EVIDENCE WAS OBSERVED. THE EXACT LOCATION OF SAID EXISTING UNDERGROUND UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY AND ALL CONSTRUCTION.

CALL TOLL FREE
"811" OR 1-800-382-5544
- INDIANA UNDERGROUND -

KITE REALTY GROUP

30 S. MERIDIAN ST., SUITE 100, INDIANAPOLIS, IN 46204

AMERICAN STRUCTUREPOINT INC.

7260 Shadeland Station | Indianapolis, Indiana 46256
TEL 317.547.5580 | FAX 317.543.0270
www.structurepoint.com

BRIDGEWATER POINTE SHOPPES

146th Street and Gray Road Westfield, IN

APPROVAL PENDING
 NOT FOR CONSTRUCTION

CERTIFIED BY

ISSUANCE INDEX

DATE: 07-31-2015

PROJECT PHASE:

REVISION SCHEDULE

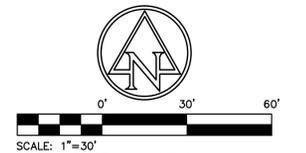
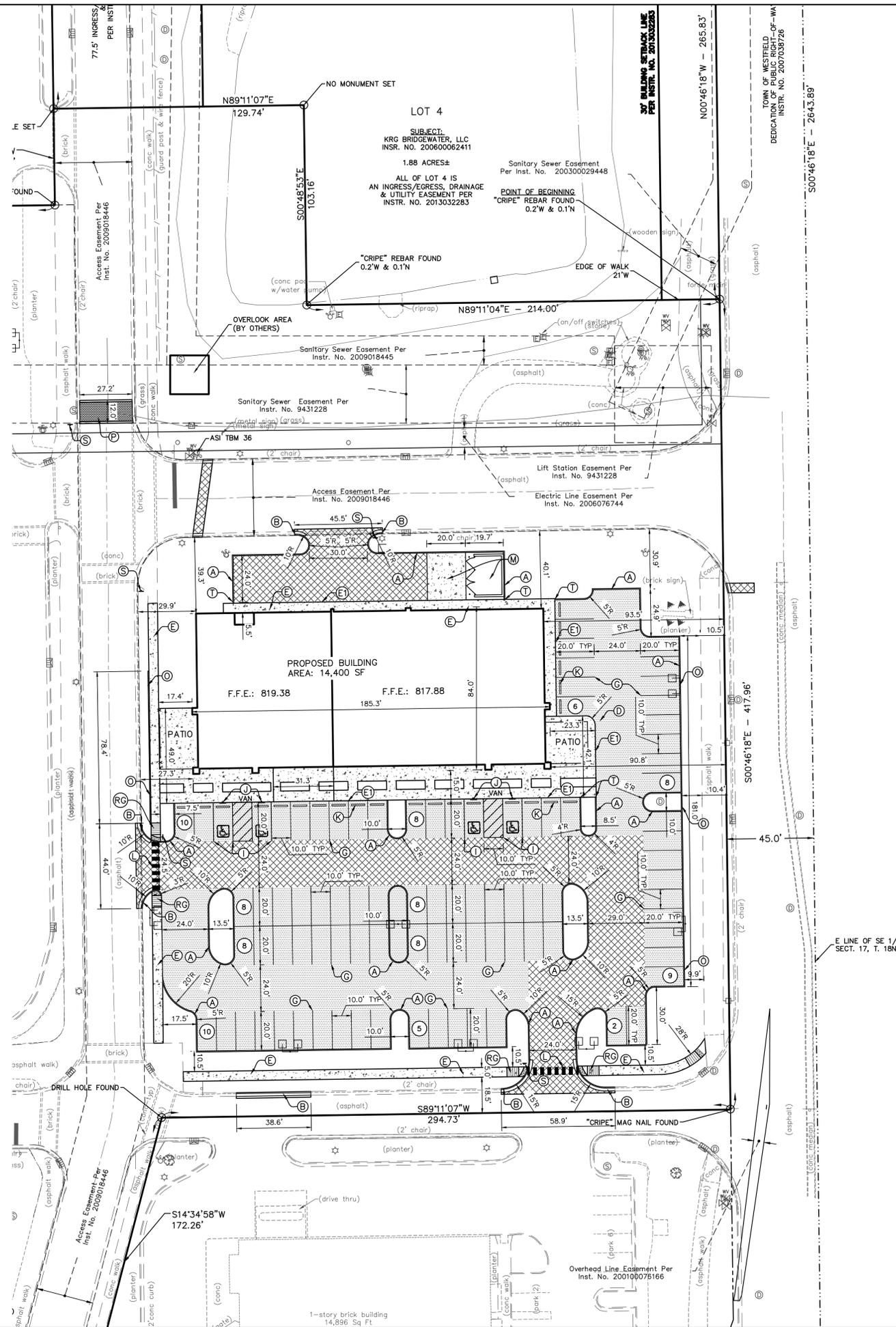
NO.	DESCRIPTION	DATE

Project Number 2015.01267

EXISTING TOPOGRAPHY - DEMOLITION PLAN

C100

PLOT DATE: 9/30/2015 11:44 AM
 PLOT SCALE: 1:1
 DRAWING FILE: P:\2015\01012670_Drawing\Chit\Construction Documents\2015.01012670_C200.SP.dwg
 EDITED BY: RBERGER



- AIR CONDITIONER
- BEEHIVE INLET
- CURB INLET
- CLEAN OUT
- DRAINAGE MANHOLE
- ELECTRIC METER BOX
- ELECTRIC CROSS BOX
- FLAG POLE
- FIRE HYDRANT
- FIRE VALVE SHUT OFF
- GROUND LIGHT
- GAS METER
- GAS MARKER SIGN
- GAS VALVE
- GUY WIRE
- HOSE BIB
- INLET
- LID
- LIGHT POLE
- MAILBOX
- MANHOLE
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- TELEPHONE CROSS BOX
- VENT
- WELL
- WATER METER
- WATER VALVE
- CONCRETE END SECTION
- OVERHEAD ELECTRIC LINE
- OVERHEAD TELEPHONE LINE
- REINFORCED CONCRETE PIPE
- REBAR SET = 5/8" DIA. REBAR
- W/CAP STAMPED
- *STRUCTUREPOINT - 0094" SET

- PROPOSED SITE LEGEND**
- LIGHT DUTY PAVEMENT
 - HEAVY DUTY PAVEMENT
 - CONCRETE

- PARKING ROW COUNT
- 6" STRAIGHT CONCRETE CURB
- 2' CONCRETE CURB AND GUTTER
- LIP GUTTER WITH UNDERDRAIN
- COMBINED WALK & CURB
- CONCRETE SIDEWALK
- CONCRETE SIDEWALK FLUSH WITH ASPHALT
- 6" CONCRETE PIPE BOLLARD
- 4" SOLID WHITE, PAINT LINE
- 4" SOLID WHITE, THERMOPLASTIC LINE
- 24" STOP BAR, WHITE, PAINT LINE
- 4" SOLID BLUE, PAINT LINE (A.D.A. SPACE)
- ADA PARKING SIGN (VAN ACCESSIBLE AS NOTED)
- CONCRETE WHEEL STOP
- 24" WHITE, THERMOPLASTIC, PEDESTRIAN CROSSWALK
- DUMPSTER PAD
- BICYCLE RACKS
- CURB WALL
- BRICK PEDESTRIAN CROSSWALK
- RAMP (GENERAL)
- A.D.A. RAMP (TYPE "H")
- A.D.A. RAMP (TYPE "C")
- A.D.A. RAMP (TYPE "G")
- STOP SIGN
- CURB TAPER
- HANDICAP ACCESSIBLE PARKING SPACE
- DIRECTIONAL ARROW, WHITE, THERMOPLASTIC
- LIGHT POLE

RETAIL SITE PARKING ANALYSIS	
TOTAL S.F. =	14,000 SF
REQUIRED RATIO =	3.5 SPACES PER 1,000 SF
TOTAL SPACES REQUIRED =	51
STANDARD PARKING (10'x20')	86
HANDICAP PARKING PROVIDED (INCLUDES 8 VAN ACCESSIBLE)	4
TOTAL PROPOSED PARKING	90

- GENERAL NOTES:**
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CALL TOLL FREE
 "811" OR 1-800-382-5544
 - INDIANA UNDERGROUND -



**BRIDGEWATER
 POINTE SHOPPES**

**146th Street and
 Gray Road
 Westfield, IN**

**APPROVAL PENDING
 NOT FOR CONSTRUCTION**

CERTIFIED BY _____

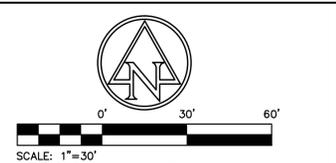
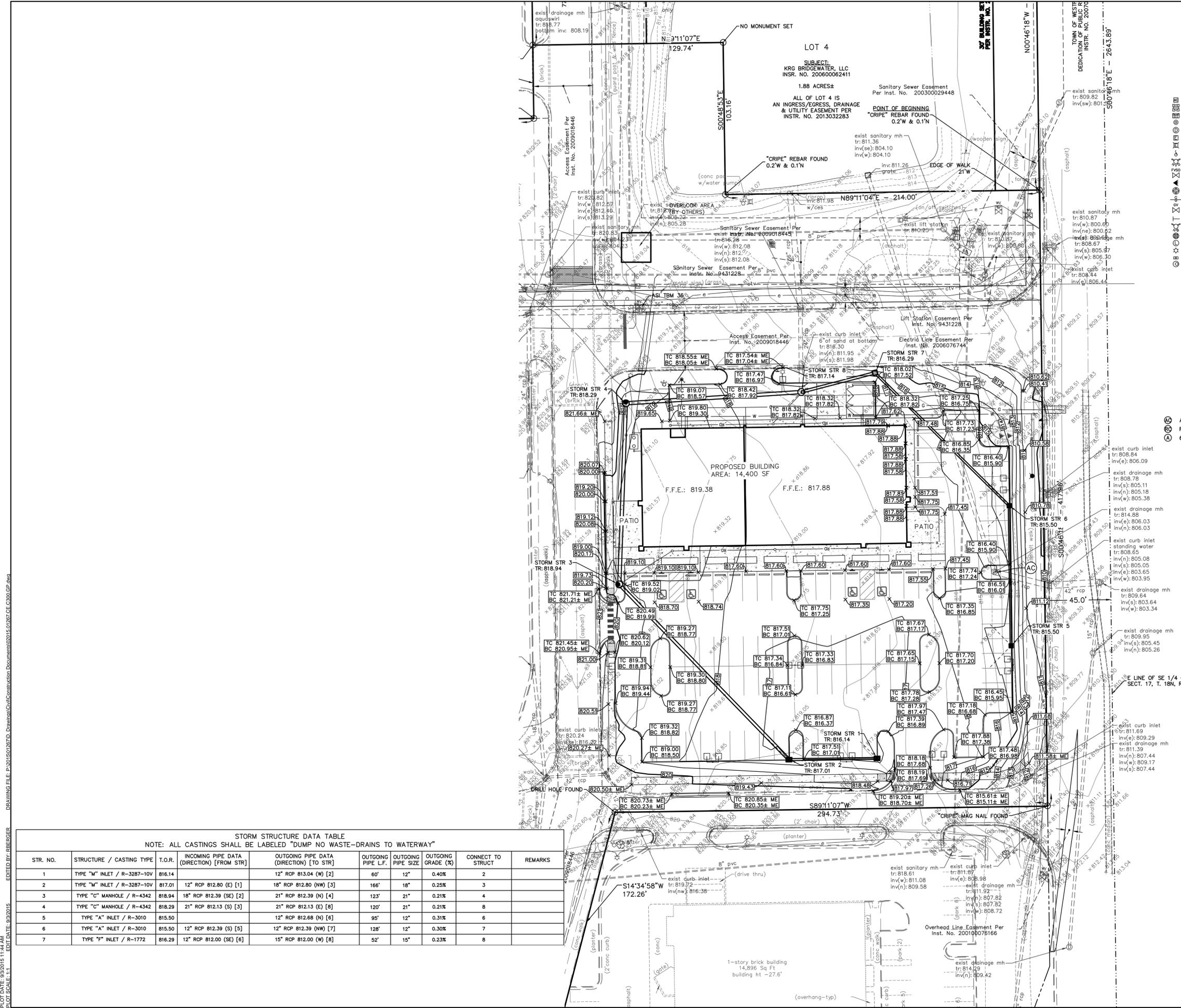
ISSUANCE INDEX	
DATE:	07-31-2015
PROJECT PHASE:	----

REVISION SCHEDULE		
NO.	DESCRIPTION	DATE

Project Number 2015.01267

SITE PLAN

C200



- EXISTING LEGEND**
- AIR CONDITIONER
 - BEEHIVE INLET
 - CURB INLET
 - CLEAN OUT
 - DRAINAGE MANHOLE
 - ELECTRIC METER BOX
 - ELECTRIC CROSS BOX
 - FLAG POLE
 - FIRE HYDRANT
 - FIRE VALVE SHUT OFF
 - GROUND LIGHT
 - GAS METER
 - GAS MARKER SIGN
 - GUY WIRE
 - HOSE BIB
 - INLET
 - LID
 - LIGHT POLE
 - MAILBOX
 - MANHOLE
 - POST
 - POWER POLE
 - SPRINKLER CONTROL VALVE
 - SIGN
 - SANITARY MANHOLE
 - STAND PIPE
 - TELEPHONE HANDHOLE
 - TELEPHONE MANHOLE
 - TELEPHONE MARKER SIGN
 - TELEPHONE PEDESTAL
 - TRANSFORMER
 - TRAFFIC POLE
 - TELEPHONE CROSS BOX
 - VENT
 - WELL
 - WATER METER
 - WATER VALVE
 - CONCRETE END SECTION
 - OVERHEAD ELECTRIC LINE
 - OVERHEAD TELEPHONE LINE
 - REINFORCED CONCRETE PIPE
 - REBAR SET = 5/8" DIA. REBAR
 - W/CAP STAMPED
 - "STRUCTUREPOINT - 0094" SET

- PROPOSED GRADING LEGEND**
- M.E. MATCH EXISTING
 - EP EDGE OF PAVEMENT
 - BC BOTTOM OF CURB
 - TC TOP OF CURB
 - CONTOURS
 - FLOW LINE
 - CURB ELEVATIONS
 - SPOT ELEVATIONS
 - RIDGE LINE
- (AC) ADJUST EXISTING CASTING TO PROPOSED GRADE
 (BC) REPLACE EXISTING CASTING W/ APPROPRIATE FLAT CASTING
 (A) 6" HDPE SMOOTH BORE DUAL WALL SSD

STORM STRUCTURE DATA TABLE
NOTE: ALL CASTINGS SHALL BE LABELED "DUMP NO WASTE--DRAINS TO WATERWAY"

STR. NO.	STRUCTURE / CASTING TYPE	T.O.R.	INCOMING PIPE DATA (DIRECTION) [FROM STR]	OUTGOING PIPE DATA (DIRECTION) [TO STR]	OUTGOING PIPE L.F.	OUTGOING PIPE SIZE	OUTGOING GRADE (%)	CONNECT TO STRUCT	REMARKS
1	TYPE "M" INLET / R-3287-10V	816.14	12" RCP 812.80 (E) [1]	12" RCP 813.04 (W) [2]	60'	12"	0.40%	2	
2	TYPE "M" INLET / R-3287-10V	817.01	12" RCP 812.39 (SE) [1]	18" RCP 812.80 (NW) [3]	166'	18"	0.25%	3	
3	TYPE "C" MANHOLE / R-4342	818.94	18" RCP 812.39 (SE) [2]	21" RCP 812.39 (N) [4]	123'	21"	0.21%	4	
4	TYPE "C" MANHOLE / R-4342	818.29	21" RCP 812.13 (S) [3]	21" RCP 812.13 (E) [8]	120'	21"	0.21%	8	
5	TYPE "A" INLET / R-3010	815.50	12" RCP 812.68 (N) [6]	12" RCP 812.68 (N) [6]	95'	12"	0.31%	6	
6	TYPE "A" INLET / R-3010	815.50	12" RCP 812.39 (S) [5]	12" RCP 812.39 (NW) [7]	128'	12"	0.30%	7	
7	TYPE "F" INLET / R-1772	816.29	12" RCP 812.00 (SE) [6]	15" RCP 812.00 (W) [8]	52'	15"	0.23%	8	

BENCHMARK:
(NAD 83 datum)
HOB-149
BRONZE DISK STAMPED "HAMILTON COUNTY GEODETIC CONTROL" SET IN THE WEST END OF THE WEST MINOR WALL OF THE BRIDGE OVER WEST-HARRIS ROAD; 225' NORTH OF E. OF 156th STREET; AND 332' WEST OF HAZEL DELL ROAD.
ELEV = 797.75

AS TRM 430
CHISELED SQUARE ON NW CORNER OF A HEADWALL 265' SOUTH OF 146TH STREET AT NW CORNER OF SITE.
ELEV = 806.35

AS TRM 431
CHISELED "Y" CORNER OF TRAFFIC PEDESTAL AT SE CORNER OF 146TH STREET AND GRAY ROAD.
ELEV = 827.87

AS TRM 435
CHISELED "X" SOUTH BOLT OF FIRE HYDRANT 240' EAST OF MARKET CENTER DRIVE AND 375N. OF E. OF 146TH STREET.
ELEV = 822.69

AS TRM 436
CHISELED "Y" SOUTH BOLT OF FIRE HYDRANT NE CORNER OF MARKET CENTER DRIVE AND NW NAME ROAD FOR ENTRANCE TO THE "LOCAL".
ELEV = 822.10

- GENERAL NOTES:**
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 - CONTRACTOR TO VERIFY LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES PRIOR TO COMMENCING ANY CONSTRUCTION. CONTACT ENGINEER IF VARIATION EXISTS.
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CALL TOLL FREE
"811" OR 1-800-382-5544
- INDIANA UNDERGROUND -

BRIDGEWATER POINTE SHOPPES

146th Street and Gray Road
Westfield, IN

**APPROVAL PENDING
NOT FOR CONSTRUCTION**

CERTIFIED BY

ISSUANCE INDEX

DATE:
07-31-2015
PROJECT PHASE:

REVISION SCHEDULE

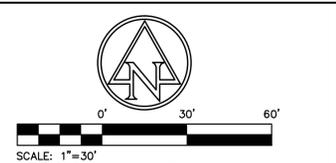
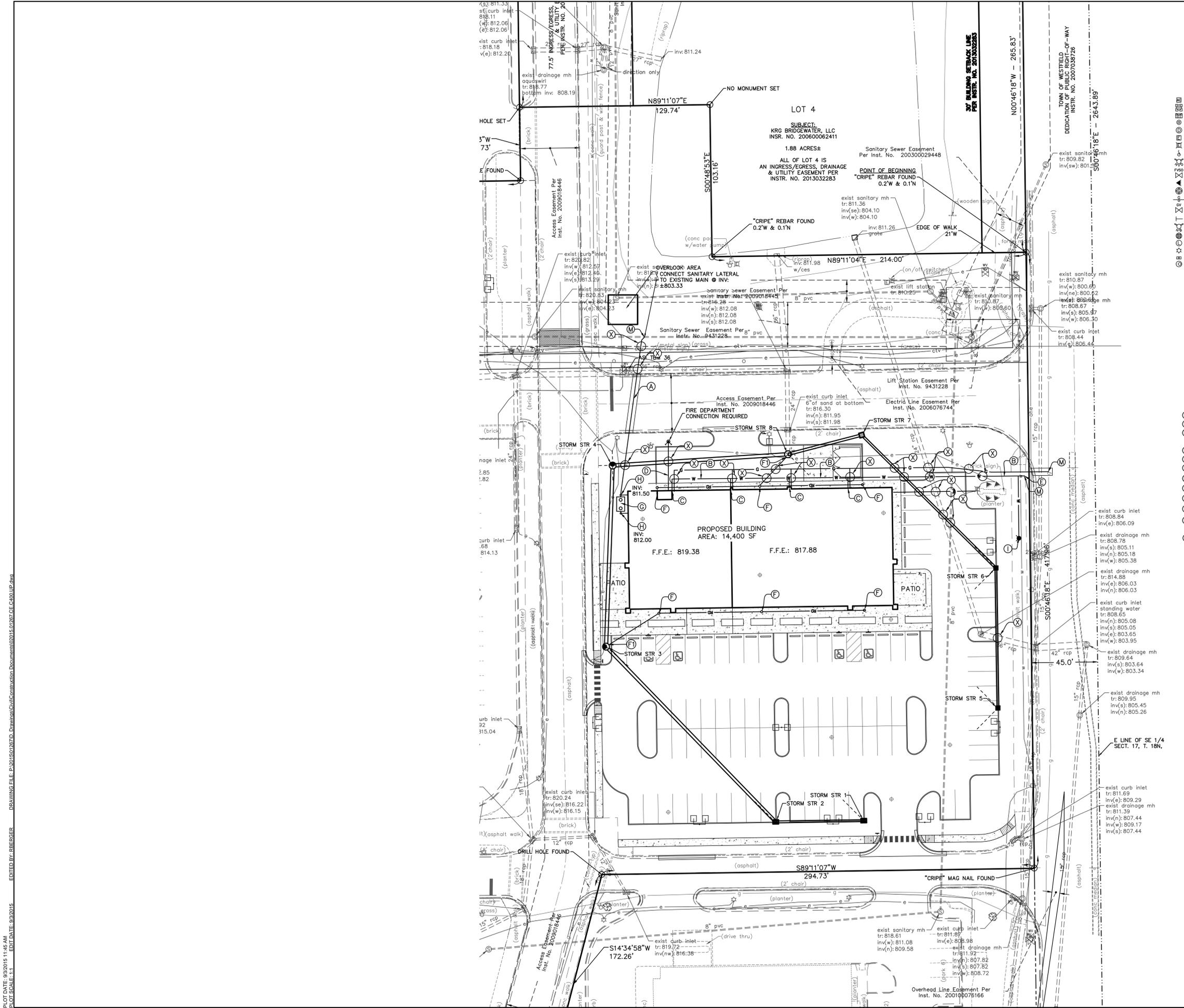
NO.	DESCRIPTION	DATE

Project Number 2015.01267

GRADING PLAN

C300

PLOT DATE: 09/20/15 11:44 AM
PLOT SCALE: 1:1
DRAWING FILE: P:\2015\01267\01 Drawings\Civil\Construction Documents\2015.01267.CE.C300.GPJ
EDIT DATE: 09/20/15
EDIT BY: RBERGER



- EXISTING LEGEND**
- AIR CONDITIONER
 - BEEHIVE INLET
 - CURB INLET
 - CLEAN OUT
 - DRAINAGE MANHOLE
 - ELECTRIC METER BOX
 - ELECTRIC CROSS BOX
 - FLAG POLE
 - FIRE HYDRANT
 - FIRE VALVE SHUT OFF
 - GROUND LIGHT
 - GAS METER
 - GAS MARKER SIGN
 - GAS VALVE
 - GUY WIRE
 - HOSE BIB
 - INLET
 - LID
 - LIGHT POLE
 - MAILBOX
 - MANHOLE
 - POST
 - POWER POLE
 - SPRINKLER CONTROL VALVE
 - SIGN
 - SANITARY MANHOLE
 - STAND PIPE
 - TELEPHONE HANDHOLE
 - TELEPHONE MANHOLE
 - TELEPHONE MARKER SIGN
 - TRANSFORMER
 - TRAFFIC POLE
 - TELEPHONE CROSS BOX
 - VENT
 - WELL
 - WATER METER
 - WATER VALVE
 - CONCRETE END SECTION
 - OVERHEAD ELECTRIC LINE
 - OVERHEAD TELEPHONE LINE
 - REINFORCED CONCRETE PIPE
 - REBAR SET = 5/8" DIA. REBAR
 - W/CAP STAMPED
 - "STRUCTUREPOINT - 0094" SET

- PROPOSED UTILITY LEGEND**
- RD ROOF DRAIN
 - G GAS LINE
 - E ELECTRIC LINE
 - T TELEPHONE LINE
 - W WATER LINE
 - 20 LF OF 4" PERFORATED PVC UNDERDRAIN
 - GAS METER
 - ELECTRICAL TRANSFORMER
 - VALVE
 - WATER METER PIT
 - HYDRANT
 - MANHOLE

- (A) 6" SDR 26 PVC SANITARY LATERAL @ 1.04% SLOPE
- (B) 6" PVC C900 WATER LINE
- (C) DOMESTIC SERVICE CONNECTION (REFER TO MEP PLANS)
- (D) 4" FIRE PROTECTION LINE
- (E) TAPPING SLEEVE AND VALVE
- (F) ROOF DRAIN CLEANOUT
- (G) CONNECT ROOF DRAIN TO STORM STRUCTURE
- (H) GREASE TRAP (REFER TO MEP PLANS)
- (I) SANITARY CLEAN OUT
- (J) FIRE HYDRANT AND VALVE ASSEMBLY
- (K) COORDINATE CONNECTION WITH UTILITY COMPANY.
- (X) CONTRACTOR TO ENSURE VERTICAL CONFLICTS DO NOT EXIST. 18" VERTICAL SEPARATION REQUIRED BETWEEN UTILITY CROSSINGS. IF 18" OF SEPARATION CANNOT BE OBTAINED CONCRETE CRADLES MAY BE USED FOR CONFLICTS BETWEEN EXISTING WATER AND GRAVITY UTILITIES OR CONFLICTS BETWEEN GRAVITY UTILITIES

BENCHMARK:
(NAVD 88 datum)
H208-149
BRONZE DISK STAMPED "HAMILTON COUNTY GEODETIC CONTROL" SET IN THE WEST WALL OF THE WEST MINOR END OF THE BRIDGE OVER WESTAL-HARRIS ROAD; ±22.5' NORTH OF E. OF 156th STREET; AND ±332' WEST OF HAZEL DELL ROAD.
ELEV = 797.75
AS TRM 430
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ELEV = 806.35
AS TRM 431
CHISELED "X" NE CORNER OF TRAFFIC PEDESTAL AT SE CORNER OF 146TH STREET AND GRAY ROAD.
ELEV = 827.97
AS TRM 435
CHISELED "X" SOUTH BOLT OF FIRE HYDRANT ±40' EAST OF MARKET CENTER DRIVE AND ±75% OF E. OF 146TH STREET.
ELEV = 822.69
AS TRM 436
CHISELED "X" SOUTH BOLT OF FIRE HYDRANT NE CORNER OF MARKET CENTER DRIVE AND NO NAME ROAD FOR ENTRANCE TO THE "LOCAL".
ELEV = 822.10

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**146th Street and
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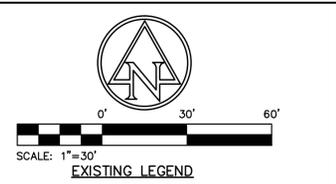
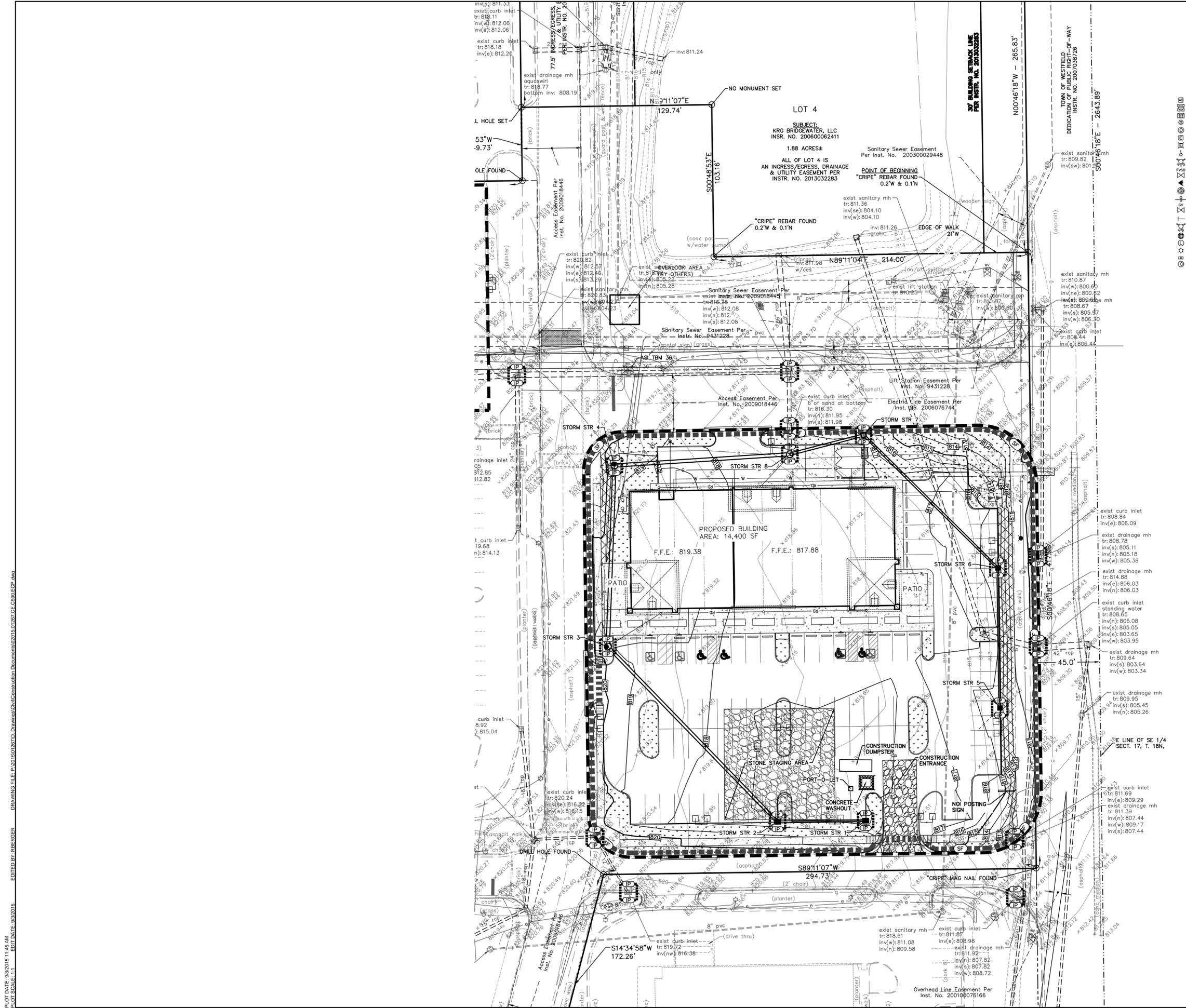
Project Number 2015.01267

UTILITY PLAN

C400

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PLOT DATE: 9/20/2015 11:45 AM
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 EDIT DATE: 9/22/2015
 EDITOR: RBERGER
 DRAWING FILE: P:\2015\012670_Drawings\Civil\Construction Documents\2015.01267.CE.C500.ECP.dwg
 DRAWN BY: RBERGER



- EXISTING LEGEND**
- | | |
|---------------------|-----------------------------|
| AIR CONDITIONER | POST |
| BEEHIVE INLET | POWER POLE |
| CURB INLET | SPRINKLER CONTROL VALVE |
| CLEAN OUT | SIGN |
| DRAINAGE MANHOLE | SANITARY MANHOLE |
| ELECTRIC METER BOX | STAND PIPE |
| ELECTRIC CROSS BOX | TELEPHONE HANDBOLE |
| FLAG POLE | TELEPHONE MANHOLE |
| FIRE HYDRANT | TELEPHONE MARKER SIGN |
| FIRE VALVE SHUT OFF | TELEPHONE PEDESTAL |
| GROUND LIGHT | TRANSFORMER |
| GAS METER | TRAFFIC POLE |
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| GAS VALVE | VENT |
| GUY WIRE | WELL |
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| INLET | WATER VALVE |
| LID | CONCRETE END SECTION |
| LIGHT POLE | OVERHEAD ELECTRIC LINE |
| MAILBOX | OVERHEAD TELEPHONE LINE |
| MANHOLE | REINFORCED CONCRETE PIPE |
| | REBAR SET = 5/8" DIA. REBAR |
| | W/CAP STAMPED |
| | "STRUCTUREPOINT - 0094" SET |

- PROPOSED EROSION CONTROL LEGEND**
- | | |
|--------------------|------------------------------|
| SILT FENCE | CONSTRUCTION LIMITS |
| INLET PROTECTION | EROSION CONTROL BLANKET |
| SEEDING WITH MULCH | GRAVEL CONSTRUCTION ENTRANCE |

BENCHMARK:
(NAVD 88 datum)

NSR-149
BRONZE DISK STAMPED "HAMILTON COUNTY GEODETIC CONTROL" SET IN THE WEST END OF THE WEST WINGWALL OF THE BRIDGE OVER WESTAL-HARRISDALE; 22.5' NORTH OF E. OF 156th STREET; AND 3332' WEST OF HAZEL DELL ROAD.
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146th Street and Gray Road
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CERTIFIED BY

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07-31-2015

PROJECT PHASE:

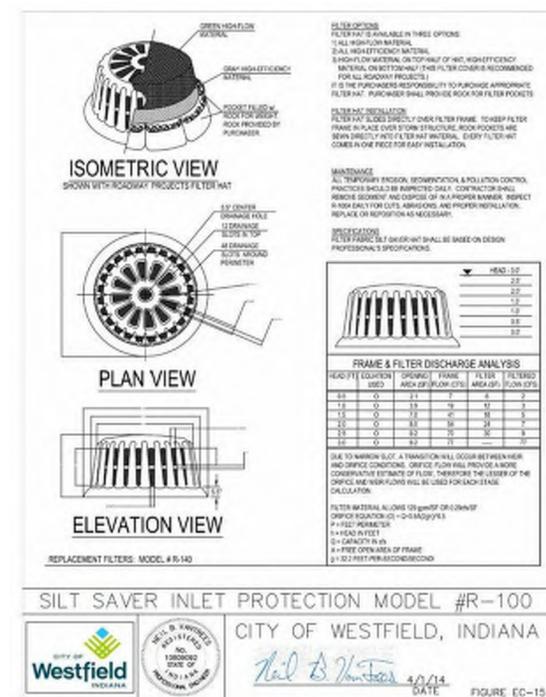
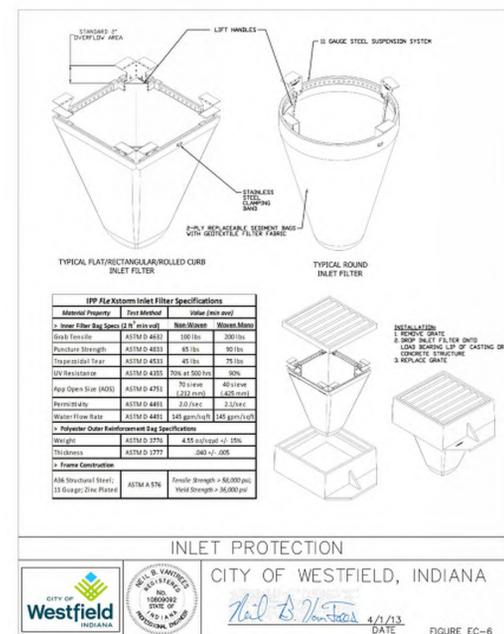
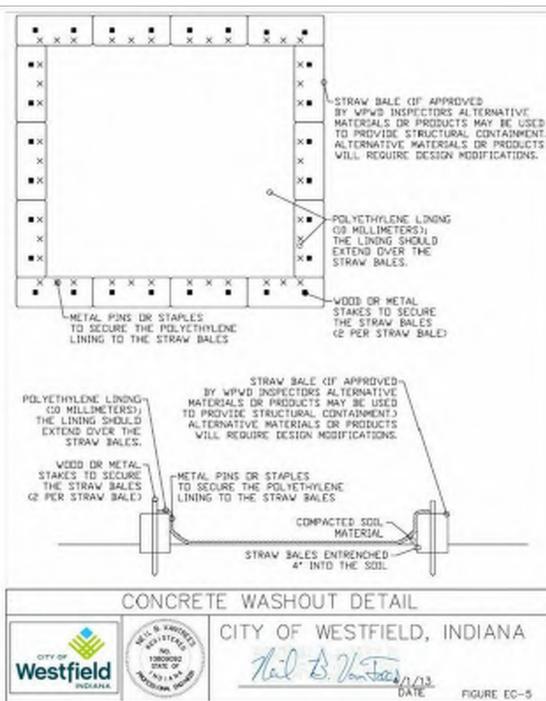
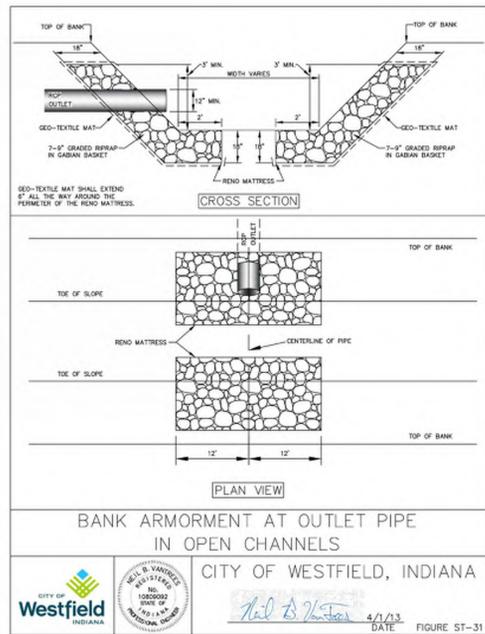
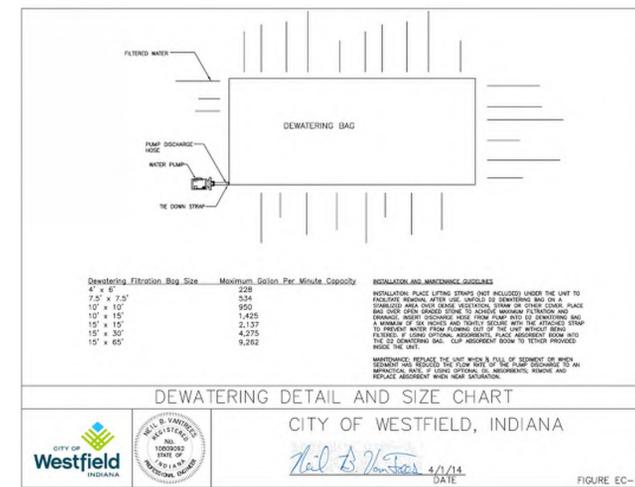
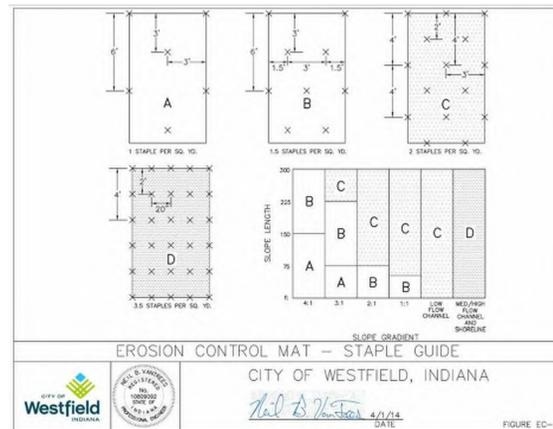
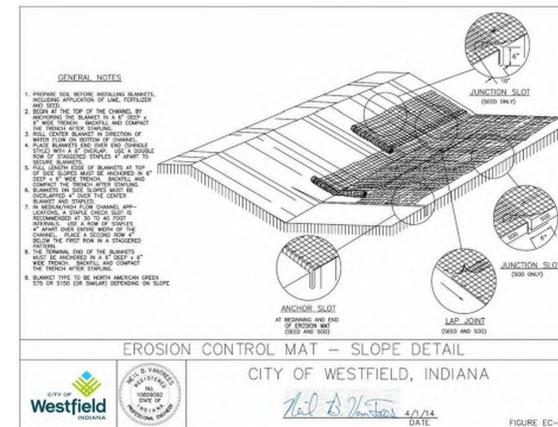
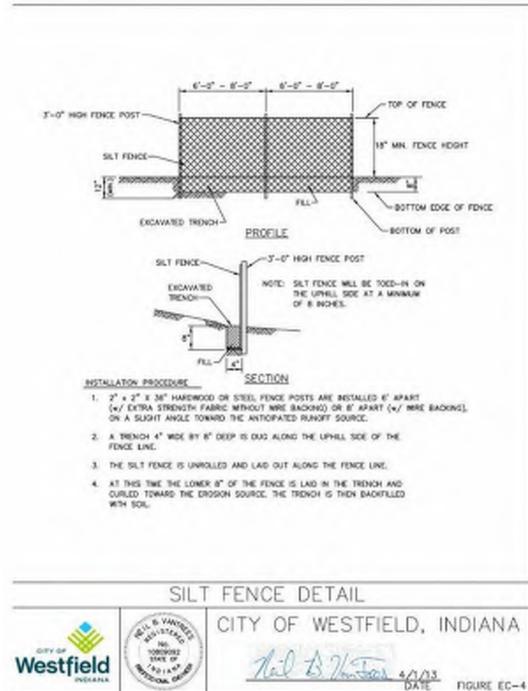
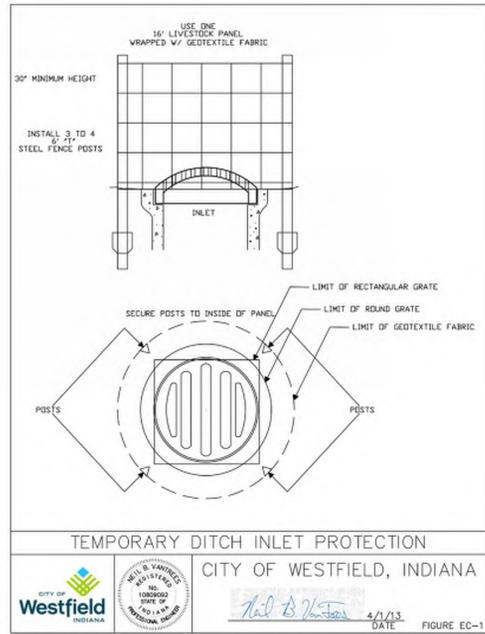
REVISION SCHEDULE		
NO.	DESCRIPTION	DATE

Project Number 2015.01267

EROSION CONTROL PLAN

C500

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 EDIT DATE: 9/30/2015 11:46 AM
 PLOT DATE: 9/30/2015 11:46 AM
 PLOT SCALE: 1.1



BRIDGEWATER POINTE SHOPPES

146th Street and Gray Road
 Westfield, IN

APPROVAL PENDING NOT FOR CONSTRUCTION

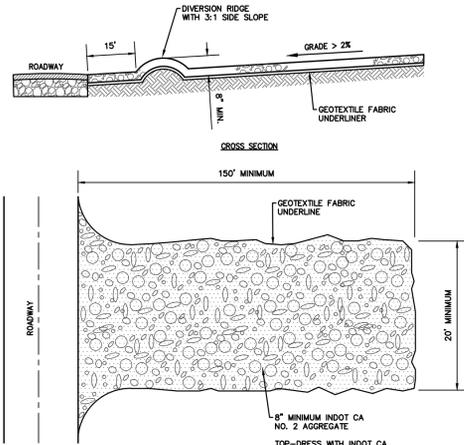
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ISSUANCE INDEX		
DATE:	07-31-2015	
PROJECT PHASE:	----	

REVISION SCHEDULE		
NO.	DESCRIPTION	DATE

Project Number 2015.01267
EROSION CONTROL DETAILS

C520



SPECIFICATIONS

- LOCATION**
- AVOID LOCATING ON STEEP SLOPES OR AT CURVES IN PUBLIC ROADS.
- DIMENSIONS**
- WIDTH: TWENTY (20) FEET MINIMUM OR FULL WIDTH OF ENTRANCE/EXIT ROADWAY, WHICHEVER IS GREATER.
 - LENGTH: ONE-HUNDRED FIFTY (150) FEET MINIMUM (LENGTH CAN BE SHORTER FOR SMALLER SITES).
 - THICKNESS: EIGHT (8) INCHES MINIMUM.

MATERIALS

- ONE (1) TO TWO AND ONE-HALF (2-1/2) INCH DIAMETER WASHED AGGREGATE (NDOT CA NO. 2).
- ONE-HALF (1/2) TO ONE AND ONE-HALF (1-1/2) INCH WASHED AGGREGATE (NDOT CA NO. 53), OPTIONAL, USED PRIMARILY WHERE THE PURPOSE OF THE PAD IS TO KEEP SOIL FROM ADHERING TO VEHICLE TIRES.
- GEOTEXTILE FABRIC UNDERLAYMENT (USED AS A SEPARATE LAYER TO PREVENT INTERMIXING OF AGGREGATE AND THE UNDERLYING SOIL MATERIAL AND TO PROVIDE GREATER BEARING STRENGTH WHEN ENCOUNTERING WET CONDITIONS OR SOILS WITH SEASONAL HIGH WATER TABLE LIMITATIONS).

INSTALLATION

1. REMOVE ALL VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA.
2. GRADE FOUNDATION AND CROWN FOR POSITIVE DRAINAGE. IF THE SLOPE OF THE CONSTRUCTION ENTRANCE IS TOWARD A PUBLIC ROAD AND EXCEEDS TWO (2) PERCENT, CONSTRUCT AN EIGHT (8) INCH HIGH DIVERSION RIDGE WITH A RATIO OF 3-TO-1 SIDE SLOPES ACROSS THE FOUNDATION AREA ABOUT 15 FEET FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE ROAD (SEE CROSS-SECTION VIEW ABOVE).
3. INSTALL A CULVERT PIPE UNDER THE PAD IF NEEDED TO MAINTAIN PROPER PUBLIC ROAD DRAINAGE.
4. IF WET CONDITIONS ARE ANTICIPATED, PLACE GEOTEXTILE FABRIC ON THE GRADED FOUNDATION TO IMPROVE STABILITY.
5. PLACE AGGREGATE (NDOT CA NO. 2) TO THE DIMENSIONS AND GRADE SHOWN IN THE CONSTRUCTION PLANS, LEAVING THE SURFACE SMOOTH AND SLOPED FOR DRAINAGE.
6. TOP-DRESS THE FIRST 50 FEET ADJACENT TO THE PUBLIC ROADWAY WITH TWO TO THREE INCHES OF WASHED AGGREGATE (NDOT CA NO. 53), OPTIONAL, USED PRIMARILY WHERE THE PURPOSE OF THE PAD IS TO KEEP SOIL FROM ADHERING TO VEHICLE TIRES.
7. WHERE POSSIBLE, DIVERT ALL STORM WATER RUNOFF AND DRAINAGE FROM THE TEMPORARY CONSTRUCTION INGRESS/EGRESS PAD TO A SEDIMENT TRAP OR BASIN.

MAINTENANCE

- INSPECT DAILY.
- RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
- TOP-DRESS WITH CLEAN AGGREGATE AS NEEDED.
- IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS.
- FLUSHING SHOULD ONLY BE USED IF THE WATER FROM THE CONSTRUCTION DRIVE CAN BE CONVEYED INTO A SEDIMENT TRAP OR BASIN.

GRAVEL CONSTRUCTION ENTRANCE
(SITES LARGER THAN TWO ACRES)
 NOT TO SCALE (REV. 11/13)

SEEDING SPECIFICATIONS

SEEDBED PREPARATION

- GRADE AND APPLY SOIL AMENDMENTS.
- SEEDING FREQUENCY**
- SEED FINAL GRADED AREAS DAILY WHILE SOIL IS STILL LOOSE AND MOIST.

DENSITY OF VEGETATIVE COVER

- NINETY PERCENT OR GREATER OVER THE SOIL SURFACE.

MATERIALS

- SOIL AMENDMENTS - SELECT MATERIALS AND RATES AS DETERMINED BY A SOIL TEST (CONTACT YOUR COUNTY SOIL AND WATER CONSERVATION DISTRICT OR COOPERATIVE EXTENSION OFFICE FOR ASSISTANCE AND SOIL INFORMATION, INCLUDING AVAILABLE SOIL TESTING SERVICES) OR 400 TO 600 POUNDS OF 12-12-12 ANALYSIS FERTILIZER, OR EQUIVALENT, CONSIDER THE USE OF REDUCED PHOSPHOROUS APPLICATION WHERE SOIL TESTS INDICATE ADEQUATE PHOSPHOROUS LEVELS IN THE SOIL PROFILE.
- SEED - SELECT APPROPRIATE PLANT SPECIES SEED OR SEED MIXTURES ON THE BASIS OF SOIL TYPE, SOIL pH, REGION OF THE STATE, TIME OF YEAR, AND INTENDED LAND USE OF THE AREA TO BE SEEDBED (SEE TABLE 1).
- MULCH - STRAW, HAY, WOOD FIBER, ETC. (TO PROTECT SEEDBED, RETAIN MOISTURE, AND ENCOURAGE PLANT GROWTH), ANCHORED TO PREVENT REMOVAL BY WIND OR WATER OR COVERED WITH PREMANUFACTURED EROSION CONTROL BLANKETS.

SEEDING APPLICATIONS

- SITE PREPARATION**
1. GRADE THE SITE TO ACHIEVE POSITIVE DRAINAGE.
 2. ADD TOPSOIL TO ACHIEVE NEEDED DEPTH FOR ESTABLISHMENT OF VEGETATION. (COMPOST MATERIAL MAY BE ADDED TO IMPROVE SOIL MOISTURE HOLDING CAPACITY, SOIL FRIABILITY, AND NUTRIENT AVAILABILITY).

SEEDBED PREPARATION

1. TEST SOIL TO DETERMINE pH AND NUTRIENT LEVELS.
2. APPLY SOIL AMENDMENTS AS RECOMMENDED BY THE SOIL TEST AND WORK INTO THE UPPER TWO TO FOUR INCHES OF SOIL. IF TESTING IS NOT DONE, APPLY 400 TO 600 POUNDS PER ACRE OF 12-12-12 ANALYSIS FERTILIZER, OR EQUIVALENT.
3. TILL THE SOIL TO OBTAIN A UNIFORM SEEDBED. USE A DISK OR RAKE, OPERATED ACROSS THE SLOPE, TO WORK THE SOIL AMENDMENTS INTO THE UPPER TWO TO FOUR INCHES OF THE SOIL.

SEEDING

- OPTIMUM SEEDING DATES** ARE MARCH 1 TO MAY 10 AND AUGUST 10 TO SEPTEMBER 30. PERMANENT SEEDING DONE BETWEEN MAY 10 AND AUGUST 10 MAY NEED TO BE IRRIGATED, SEEDING OUTSIDE OR BEYOND OPTIMUM SEEDING DATES IS STILL POSSIBLE WITH THE UNDERSTANDING THAT RESEEDING OR OVERSEEDING MAY BE REQUIRED IF ADEQUATE SURFACE COVER IS NOT ACHIEVED. RESEEDING OR OVERSEEDING CAN BE EASILY ACCOMPLISHED IF THE SOIL SURFACE REMAINS WELL PROTECTED WITH MULCH.

1. SELECT A SEEDING MIXTURE AND RATE FROM TABLE 1. SELECT SEED MIXTURE BASED ON SITE CONDITIONS, SOIL pH, INTENDED LAND USE, AND EXPECTED LEVEL OF MAINTENANCE.
2. APPLY SEED UNIFORMLY WITH A DRILL OR CULTRIPACKER SEEDER OR BY BROADCASTING. PLANT OR COVER THE SEED TO A DEPTH OF ONE-FOURTH TO ONE-HALF INCH. IF DRILLING OR BROADCASTING THE SEED, ENSURE GOOD SEED-TO-SOIL CONTACT BY FIRING, THE SEEDBED WITH A ROLLER OR CULTRIPACKER AFTER COMPLETING SEEDING OPERATIONS. (IF SEEDING IS DONE WITH A HYDROSEEDER, FERTILIZER AND MULCH CAN BE APPLIED WITH THE SEED IN A SLURRY MIXTURE.)
3. MULCH ALL SEEDED AREAS AND USE APPROPRIATE METHODS TO ANCHOR THE MULCH IN PLACE. CONSIDER USING EROSION CONTROL BLANKETS ON SLOPING AREAS AND CONVEYANCE CHANNELS.

SEEDING MAINTENANCE

- INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS UNTIL THE VEGETATION IS SUCCESSFULLY ESTABLISHED.
- CHARACTERISTICS OF A SUCCESSFUL STAND INCLUDE VIGOROUS DARK GREEN OR BLUEISH-GREEN SEEDLINGS WITH A UNIFORM VEGETATIVE COVER DENSITY OF 90 PERCENT OR MORE.
- CHECK FOR EROSION OR MOVEMENT OF MULCH.
- REPAIR DAMAGED, BARE, GULLED, OR SPARSELY VEGETATED AREAS AND THEN FERTILIZE, RESEED, AND APPLY AND ANCHOR MULCH.
- IF PLANT COVER IS SPARSE OR PATCHY, EVALUATE THE PLANT MATERIALS CHOSEN, SOIL FERTILITY, MOISTURE CONDITION, AND MULCH APPLICATION. REPAIR AFFECTED AREAS EITHER BY OVERSEEDING OR PREPARING A NEW SEEDBED AND RESEEDING. APPLY AND ANCHOR MULCH ON THE NEWLY SEEDBED AREAS.
- IF VEGETATION FAILS TO GROW, CONSIDER SOIL TESTING TO DETERMINE SOIL pH OR NUTRIENT DEFICIENCY PROBLEMS. (CONTACT YOUR SOIL AND WATER CONSERVATION DISTRICT OR COOPERATIVE EXTENSION OFFICE FOR ASSISTANCE.)
- IF ADDITIONAL FERTILIZATION IS NEEDED TO GET A SATISFACTORY STAND, DO SO ACCORDING TO SOIL TEST RECOMMENDATIONS.
- ADD FERTILIZER THE FOLLOWING GROWING SEASON. FERTILIZE ACCORDING TO SOIL TEST RECOMMENDATIONS.
- FERTILIZE TURF AREAS ANNUALLY. APPLY FERTILIZER IN A SPLIT APPLICATION. FOR COOL-SEASON GRASSES, APPLY ONE-HALF OF THE FERTILIZER IN LATE SPRING AND ONE-HALF IN EARLY FALL. FOR WARM-SEASON GRASSES, APPLY ONE-THIRD IN EARLY SPRING, ONE-THIRD IN LATE SPRING, AND THE REMAINING ONE-THIRD IN MIDDLE SUMMER.

TABLE 1. PERMANENT SEEDING RECOMMENDATIONS

THIS TABLE PROVIDES SEVERAL SEED MIXTURE OPTIONS. ADDITIONAL SEED MIXTURES ARE AVAILABLE COMMERCIALY. WHEN SELECTING A MIXTURE, CONSIDER INTENDED LAND USE AND SITE CONDITIONS, INCLUDING SOIL PROPERTIES (E.G., SOIL pH AND DRAINAGE), SLOPE ASPECT, AND THE TOLERANCE OF EACH SPECIES TO SHADE AND DROUGHT.

OPEN LOW-MAINTENANCE AREAS
(REMAINING IDLE MORE THAN SIX MONTHS)

SEED MIXTURES	RATE PER ACRE PURE LIVE SEED	OPTIMUM SOIL pH
1. PERENNIAL RYEGRASS -WHITE CLOVER**	70 LBS. 2 LBS.	5.6 TO 7.0
2. PERENNIAL RYEGRASS -TALL FESCUE**	70 LBS. 50 LBS.	5.6 TO 7.0
3. TALL FESCUE** -WHITE CLOVER**	70 LBS. 2 LBS.	5.5 TO 7.5

STEEP BANKS AND CUTS, LOW-MAINTENANCE AREAS
(NOT MOWED)

SEED MIXTURES	RATE PER ACRE PURE LIVE SEED	OPTIMUM SOIL pH
1. SMOOTH BROME GRASS -RED CLOVER**	35 LBS. 20 LBS.	5.5 TO 7.0
2. TALL FESCUE** -WHITE CLOVER**	50 LBS. 2 LBS.	5.5 TO 7.5
3. TALL FESCUE** -RED CLOVER**	50 LBS. 20 LBS.	5.5 TO 7.5
4. ORCHARD GRASS -RED CLOVER**	30 LBS. 20 LBS.	5.6 TO 7.0
5. CROWNVEITCH** -TALL FESCUE**	12 LBS. 30 LBS.	5.6 TO 7.0

LAWNS AND HIGH-MAINTENANCE AREAS

SEED MIXTURES	RATE PER ACRE PURE LIVE SEED	OPTIMUM SOIL pH
1. BLUEGRASS	140 LBS.	5.5 TO 7.0
2. PERENNIAL RYEGRASS (TURF TYPE)	60 LBS. 90 LBS.	5.5 TO 7.0
3. TALL FESCUE (TURF TYPE)** -BLUEGRASS	170 LBS. 30 LBS.	5.6 TO 7.5

CHANNELS AND AREAS OF CONCENTRATED FLOW

SEED MIXTURES	RATE PER ACRE PURE LIVE SEED	OPTIMUM SOIL pH
1. PERENNIAL RYEGRASS -WHITE*	150 LBS. 2 LBS.	5.5 TO 7.0
2. KENTUCKY BLUEGRASS -SMOOTH BROMEGRASS -SMITHGRASS -TIMOTHY -PERENNIAL RYEGRASS -WHITE CLOVER**	20 LBS. 10 LBS. 3 LBS. 4 LBS. 10 LBS. 2 LBS.	5.5 TO 7.5
3. TALL FESCUE** -WHITE CLOVER**	150 LBS. 2 LBS.	5.5 TO 7.5
4. TALL FESCUE** -PERENNIAL RYEGRASS -KENTUCKY BLUEGRASS	150 LBS. 20 LBS. 20 LBS.	5.5 TO 7.5

*FOR BEST RESULTS: (A) LEGUME SEED SHOULD BE INOCULATED; (B) SEEDING MIXTURES CONTAINING LEGUMES SHOULD PREFERABLY BE SPRING-SEEDED, ALTHOUGH THE GRASS MAY BE FALL-SEEDED AND THE LEGUME FROST-SEEDED; AND (C) IF LEGUMES ARE FALL-SEEDED, DO SO IN EARLY FALL.

**TALL FESCUE PROVIDES LITTLE COVER FOR, AND MAY BE TOXIC TO SOME SPECIES OF WILDLIFE. THE INDIANA DEPARTMENT OF NATURAL RESOURCES RECOGNIZES THE NEED FOR ADDITIONAL RESEARCH ON ALTERNATIVES SUCH AS BUFFALOGRASS, ORCHARDGRASS, SMOOTH BROMEGRASS, AND SWITCHGRASS. THIS RESEARCH, IN CONJUNCTION WITH DEMONSTRATION AREAS, SHOULD FOCUS ON EROSION CONTROL CHARACTERISTICS, WILDLIFE TOXICITY, TURF DISABILITY, AND DROUGHT RESISTANCE.

NOTES:

1. AN OAT OR WHEAT COMPANION OR NURSE CROP MAY BE USED WITH ANY OF THE ABOVE PERMANENT SEEDING MIXTURES, AT THE FOLLOWING RATES.
 - A. SPRING OATS - ONE-FOURTH TO THREE-FOURTHS BUSHEL PER ACRE
 - B. WHEAT - NO MORE THAN ONE-HALF BUSHEL PER ACRE
2. A HIGH POTENTIAL FOR FERTILIZER, SEED, AND MULCH TO WASH EXISTIS ON STEEP BANKS, CUTS, AND IN CHANNELS AND AREAS OF CONCENTRATED FLOW.

PERMANENT SEEDING WITH MULCH
 NOT TO SCALE (REV. 11/13)

MULCH SPECIFICATIONS

MATERIALS

TABLE 1. SLOPE STEEPNESS RESTRICTIONS

MATERIAL*	RATE PER ACRE	COMMENTS
STRAW OR HAY	2 TONS	SHOULD BE DRY, FREE OF UNDESIRABLE SEEDS. SPREAD BY HAND OR MACHINE. MUST BE CRIMPED OR ANCHORED (SEE TABLE 2).
WOOD FIBER OR CELLULOSE	1 TON	APPLY WITH A HYDRAULIC MULCH MACHINE AND USE WITH TACKING AGENT.

*MULCHING IS NOT RECOMMENDED IN CONCENTRATED FLOWS. CONSIDER EROSION CONTROL BLANKETS OR OTHER STABILIZATION METHODS.

COVERAGE

- THE MULCH SHOULD HAVE A UNIFORM DENSITY OF AT LEAST 75 PERCENT OVER THE SOIL SURFACE.

TABLE 2. MULCH ANCHORING METHODS

ANCHORING METHOD*	HOW TO APPLY
MULCH ANCHORING TOOL OR FARM DISK (DULL, SERRATED, AND BLADES SET STRAIGHT)	CRIMP OR PUNCH THE STRAW OR HAY TWO TO FOUR INCHES INTO THE SOIL. OPERATE MACHINERY ON THE CONTOUR OF THE SLOPE.
CLEATING WITH DOZER TRACKS	OPERATE DOZER UP AND DOWN SLOPE TO PREVENT FORMATION OF RILLS BY DOZER CLEATS.
WOOD HYDROMULCH FIBERS	APPLY ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
SYNTHETIC TACKIFIERS, BINDERS, OR SOIL STABILIZERS	APPLY ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
NETTING (SYNTHETIC OR BIODEGRADABLE MATERIAL)	INSTALL NETTING IMMEDIATELY AFTER APPLYING MULCH. ANCHOR NETTING WITH STAPLES. EDGES OF NETTING STRIPS SHOULD OVERLAP WITH EACH UP-SLOPE STRIP OVERLAPPING FOUR TO SIX INCHES OVER THE ADJACENT DOWN-SLOPE STRIP. BEST SUITED TO SLOPE APPLICATIONS. IN MOST INSTANCES, INSTALLATION DETAILS ARE SITE SPECIFIC, SO MANUFACTURER'S RECOMMENDATIONS SHOULD BE FOLLOWED.

*ALL FORMS OF MULCH MUST BE ANCHORED TO PREVENT DISPLACEMENT BY WIND AND/OR WATER.

MULCH APPLICATION

1. APPLY MULCH AT THE RECOMMENDED RATE SHOWN IN TABLE 1.
2. SPREAD THE MULCH MATERIAL UNIFORMLY BY HAND, HAYFORK, MULCH BLOWER, OR HYDRAULIC MULCH MACHINE. AFTER SPREADING, NO MORE THAN 25 PERCENT OF THE GROUND SHOULD BE VISIBLE.
3. ANCHOR STRAW OR HAY MULCH IMMEDIATELY AFTER APPLICATION. THE MULCH CAN BE ANCHORED USING ONE OF THE METHODS LISTED BELOW:
 - a. CRIMP WITH A MULCH ANCHORING TOOL. A WEIGHTED FARM DISK WITH DULL SERRATED BLADES SET STRAIGHT, OR TRACK CLEATS OF A BULLDOZER.
 - b. APPLY HYDRAULIC MULCH WITH SHORT CELLULOSE FIBERS.
 - c. APPLY A LIQUID TACKIFIER, OR
 - d. COVER WITH NETTING SECURED BY STAPLES.

MULCH MAINTENANCE

- INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
- CHECK FOR EROSION OR MOVEMENT OF MULCH; REPAIR DAMAGED AREAS, RESEED, APPLY NEW MULCH AND ANCHOR THE MULCH IN PLACE.
- CONTINUE INSPECTIONS UNTIL VEGETATION IS FIRMLY ESTABLISHED.
- IF EROSION IS SEVERE OR RECURRING, USE EROSION CONTROL BLANKETS OR OTHER MORE SUBSTANTIAL STABILIZATION METHODS TO PROTECT THE AREA.



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ISSUANCE INDEX

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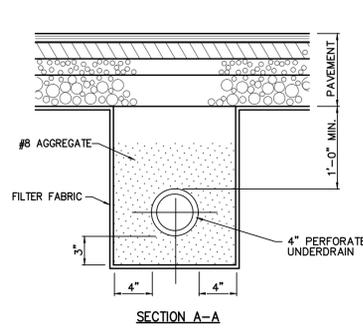
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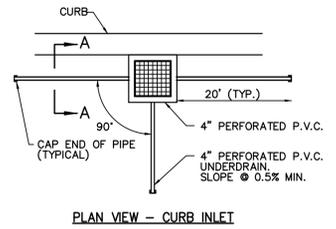
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**EROSION CONTROL
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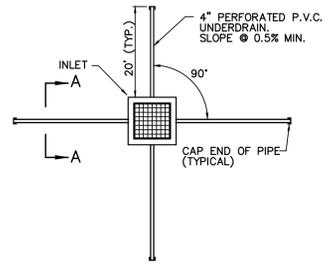
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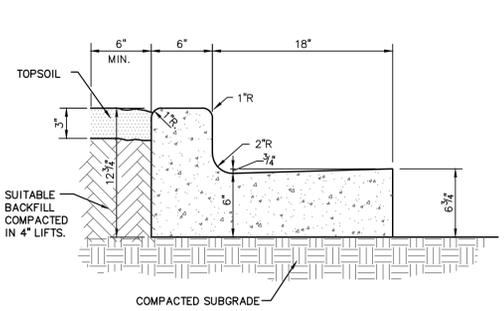
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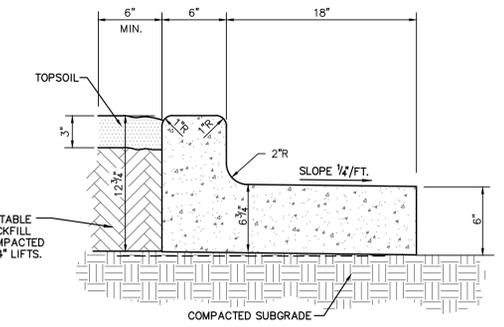
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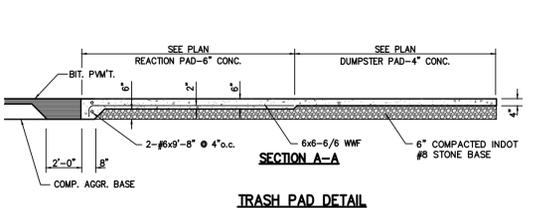
PLAN VIEW - INLET IN PARKING LOT



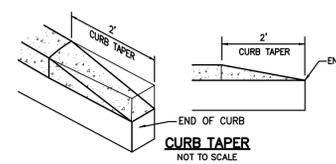
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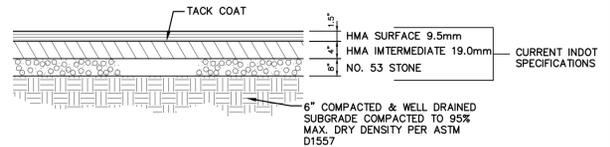
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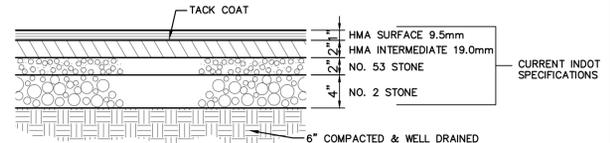
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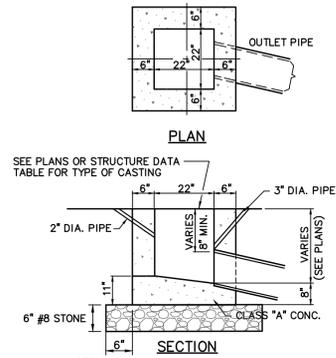
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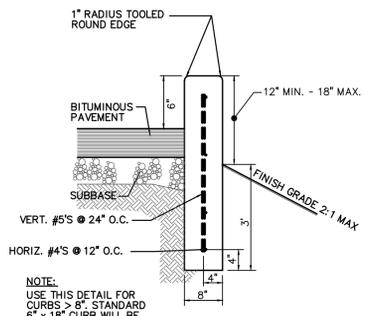
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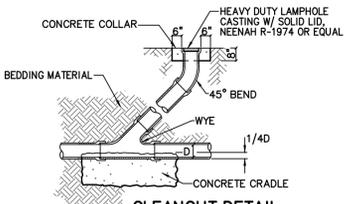
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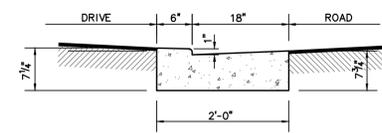
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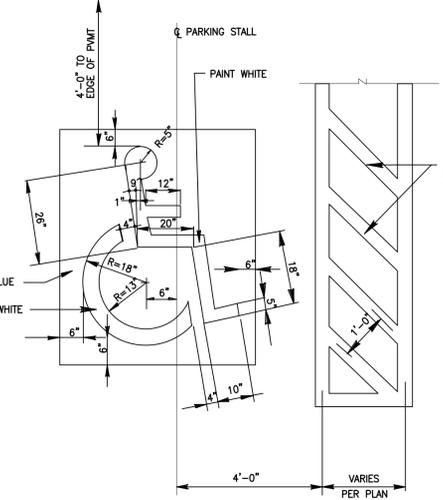
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CLEANOUT DETAIL
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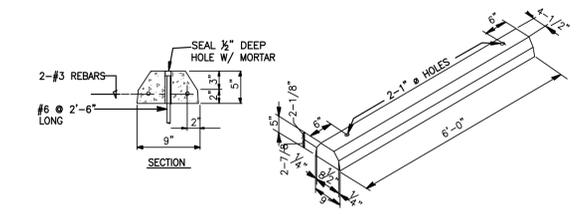
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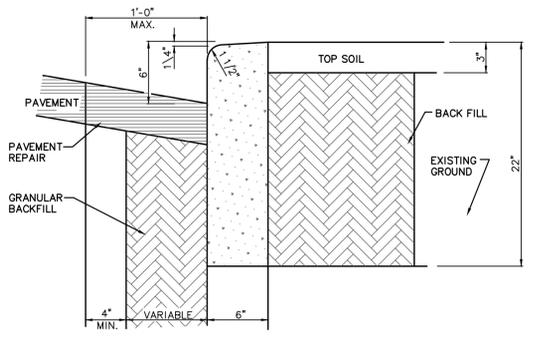
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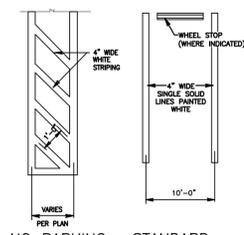
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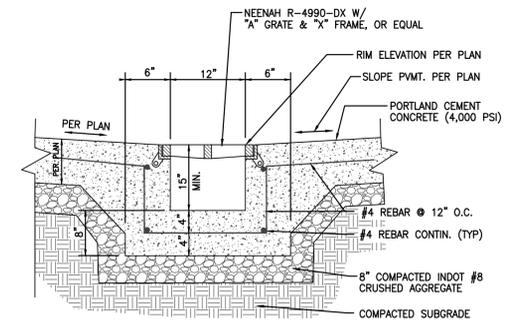
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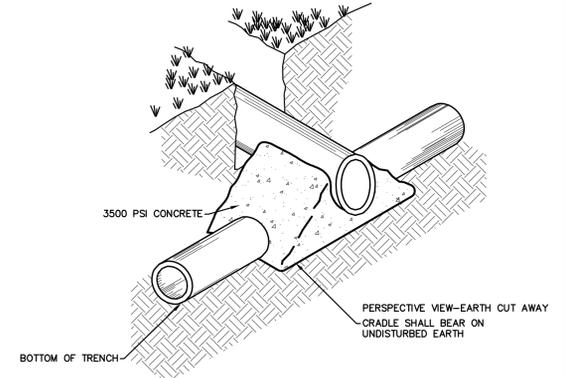
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NOT TO SCALE



NO PARKING STANDARD PARKING SPACE STRIPING
NOT TO SCALE



TRENCH DRAIN DETAIL
NOT TO SCALE



CONCRETE CRADLE DETAIL
NOT TO SCALE

- NOTES:
- CONTRACTOR TO POUR CONCRETE AND PROVIDE ANCHOR RODS AS REQUIRED TO ACCOMMODATE FRAME. REFER TO MANUFACTURER SPECIFICATIONS FOR ADDITIONAL INFORMATION.
 - BOTTOM OF TRENCH TO SLOPE 0.5% MIN. FOR POSITIVE DRAINAGE. PROVIDE DISCHARGE PIPE AS INDICATED ON PLANS.

NOTE:
TO BE USED WHEN CLEAR DISTANCE (FROM EXTERIOR PIPE DIAMETER TO EXTERIOR PIPE DIAMETER) BETWEEN SANITARY SEWER PIPING (MANS, LATERALS, FORCE MAINS, ETC.) AND ALL OTHER PIPES IS 18" OR LESS, PER ENGINEER'S DIRECTION OR WHERE NOTED ON THE CONSTRUCTION PLANS. A MINIMUM CLEAR DISTANCE OF 3" MUST BE PROVIDED TO MAINTAIN STRUCTURAL INTEGRITY OF THE CONCRETE.
CONCRETE MUST NOT COME INTO CONTACT WITH FORCE MAIN. AT LEAST 3" OF SAND MUST BE PLACED AS A CUSHION AROUND THE FORCE MAIN.
IF THE CONFLICT IS BETWEEN A WATER MAIN AND ANY SANITARY SEWER PIPING, 18" CLEARANCE MUST BE MAINTAINED OR NOTE ABOVE APPLIES AND ONLY GRANULAR FILL MAYBE USED.

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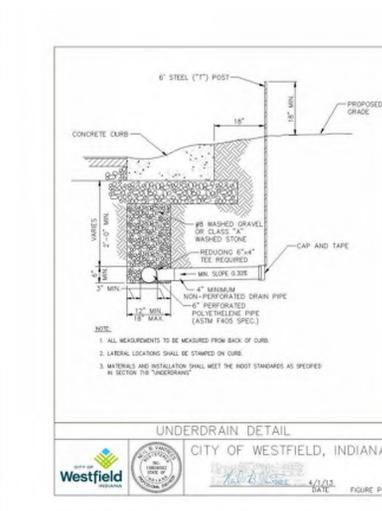
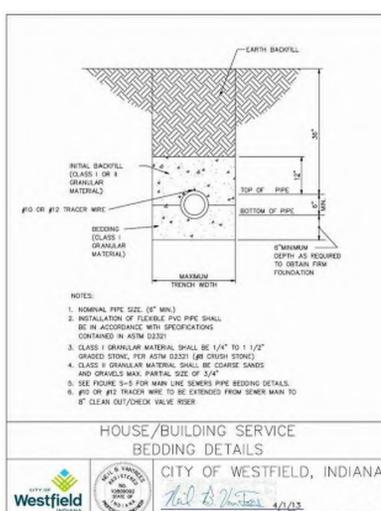
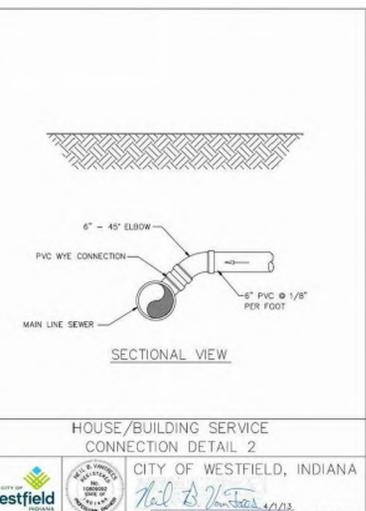
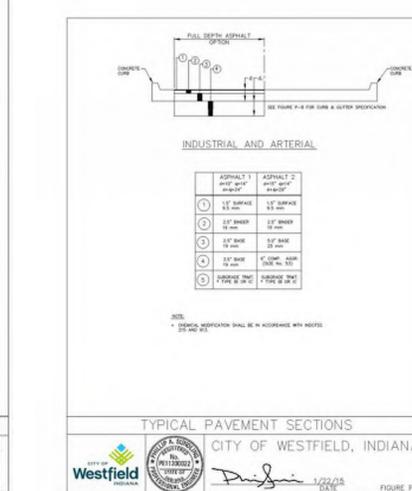
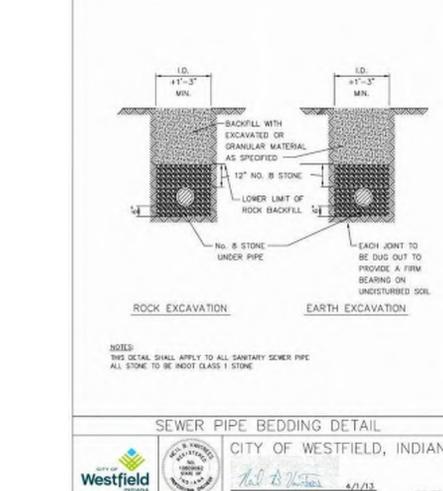
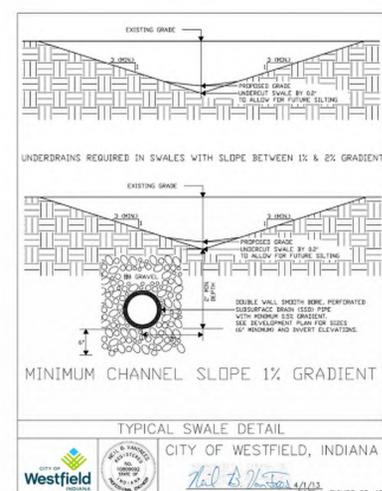
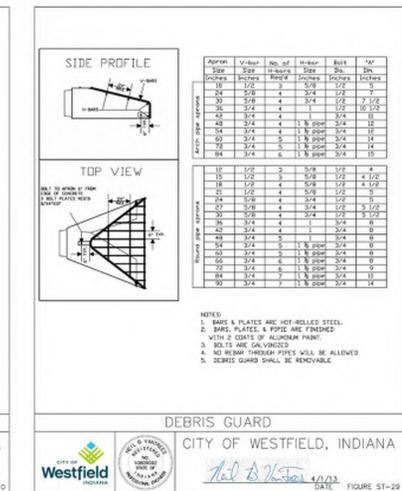
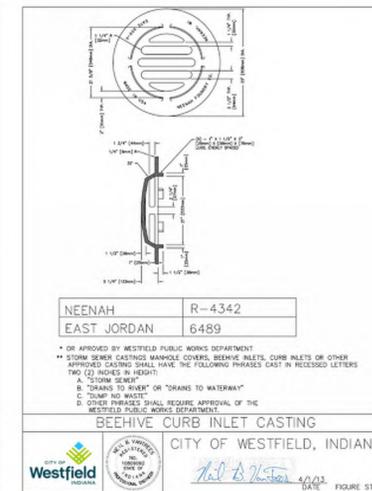
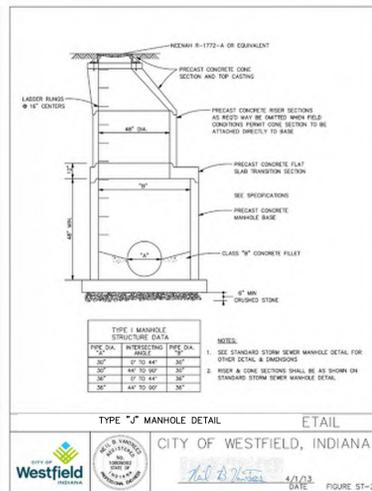
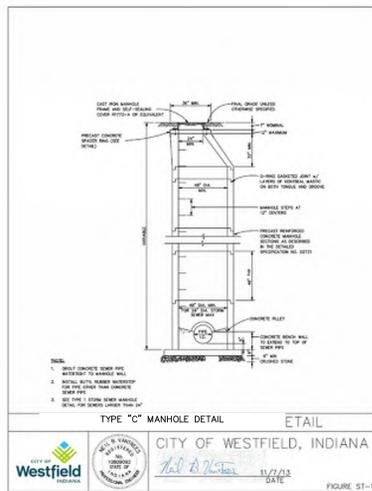
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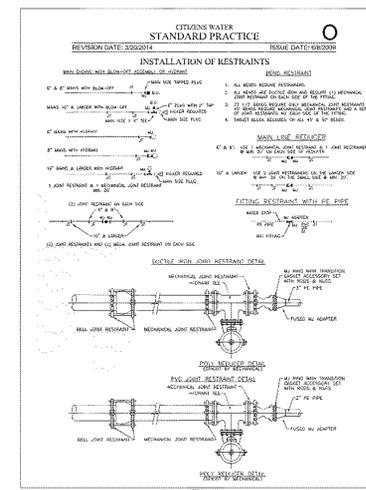
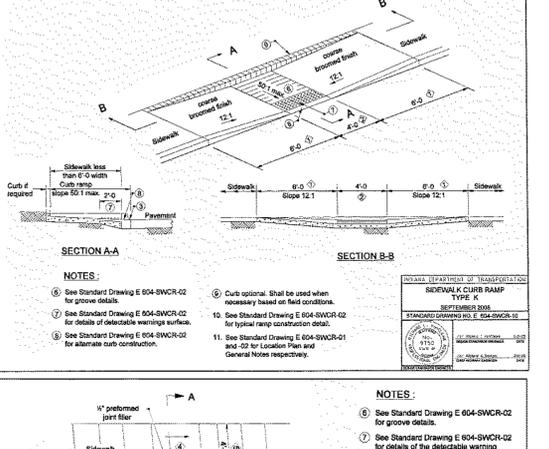
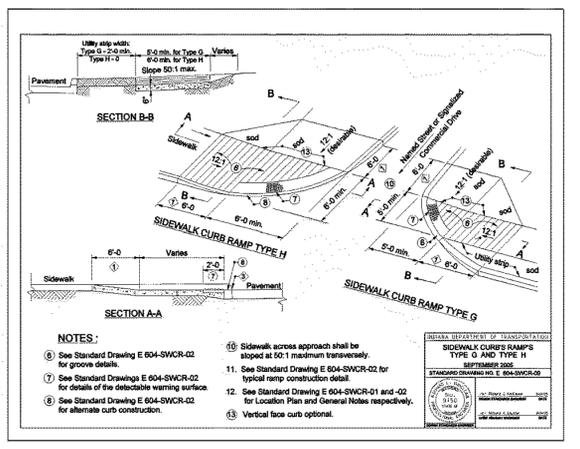
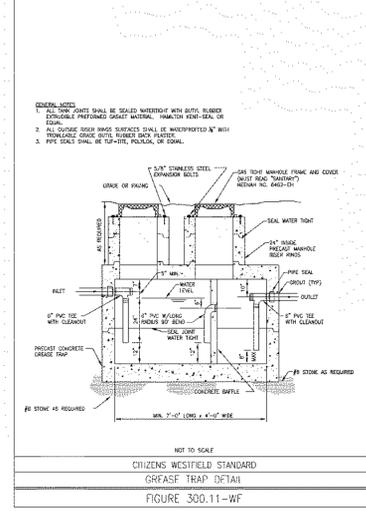
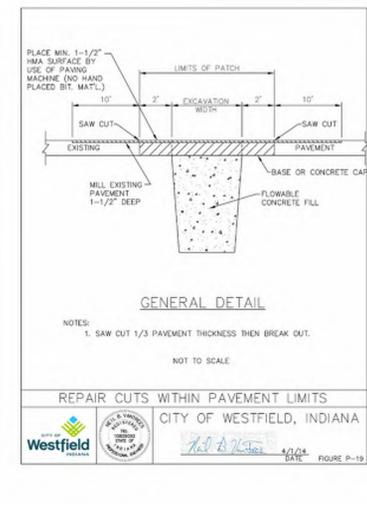
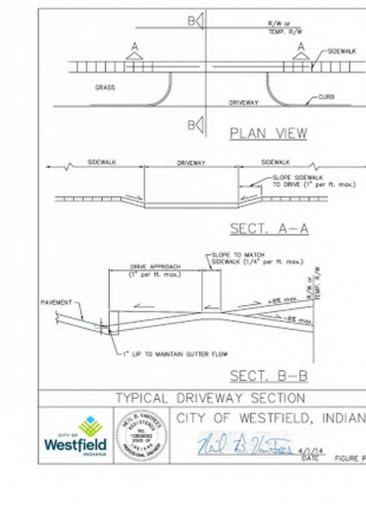
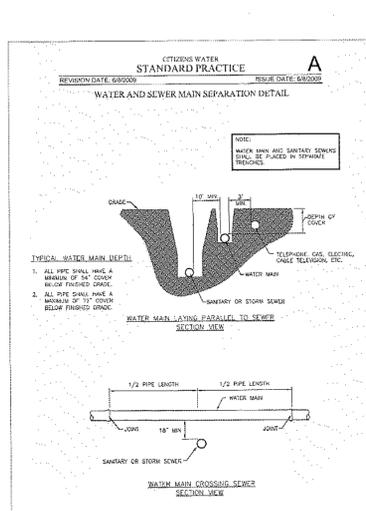
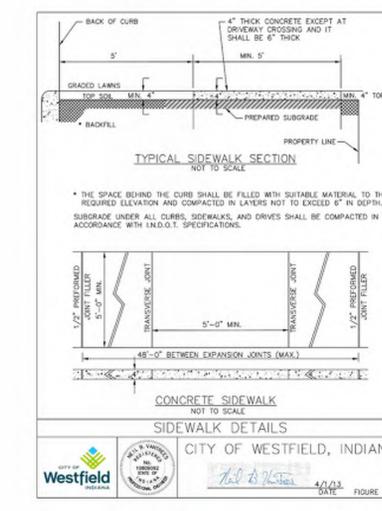
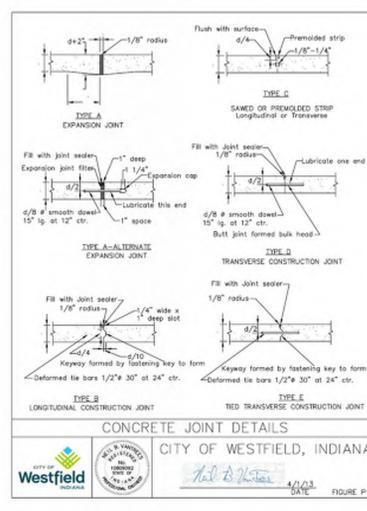
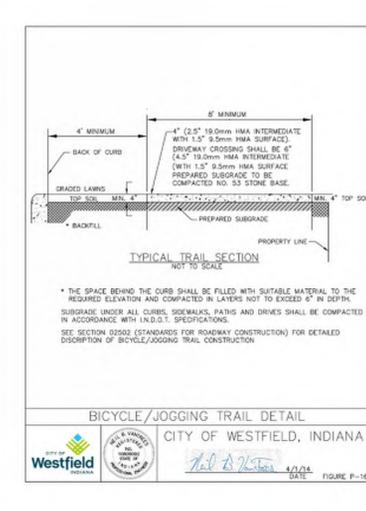
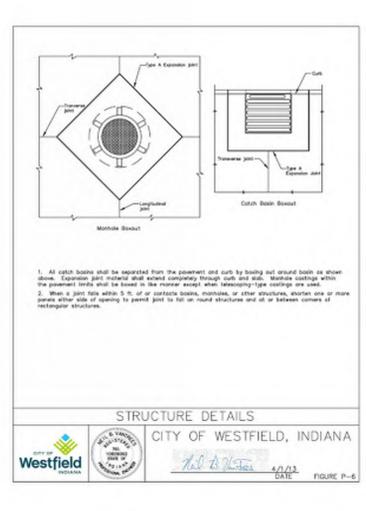
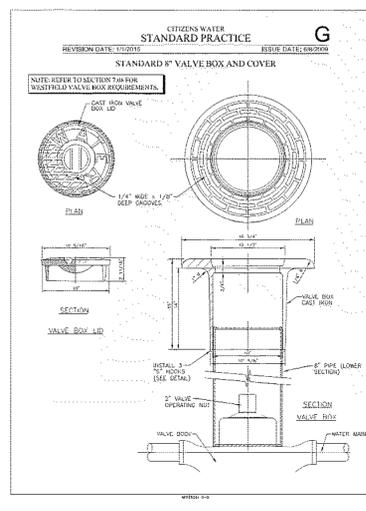
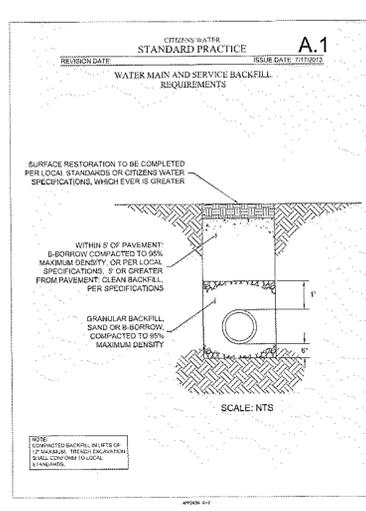
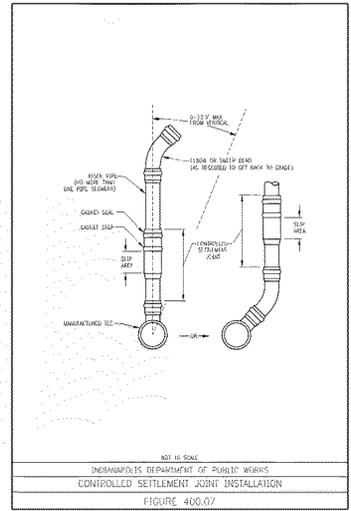
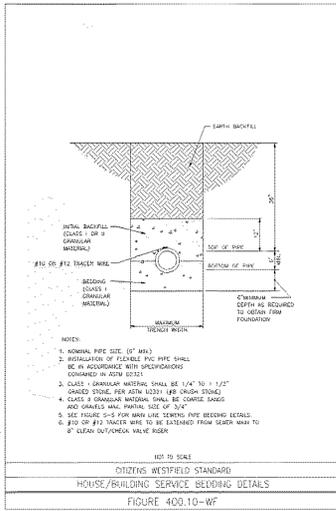
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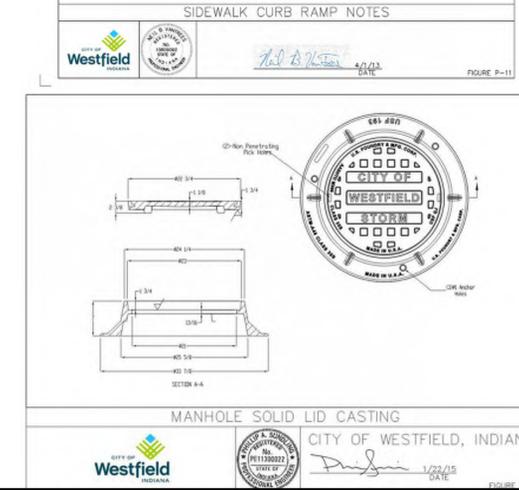
C601



SIDEWALK CURB RAMP NOTES

THE CITY OF WESTFIELD FOLLOWS THE INDOT GUIDELINES FOR SIDEWALK RAMPS. THE LIST OF DETAILS BELOW CAN BE FOUND ON THE INDOT WEBSITE: <http://www.in.gov/odot/contracts/standards/drawings/sep13/sep600.htm>

E 604-SWCR-01 Location Plan for Sidewalk Curbside Ramps (eff. 09/01/05)
 E 604-SWCR-02 Sidewalk Curbside Ramps General Notes & Details (eff. 09/01/05)
 E 604-SWCR-03 Sidewalk Curbside Ramp Type A (eff. 09/01/05)
 E 604-SWCR-04 Sidewalk Curbside Ramp Type B (eff. 09/01/05)
 E 604-SWCR-05 Sidewalk Curbside Ramp Type C (eff. 09/01/05)
 E 604-SWCR-06 Sidewalk Curbside Ramp Type D (eff. 09/01/05)
 E 604-SWCR-07 Sidewalk Curbside Ramp Type E (eff. 09/01/05)
 E 604-SWCR-08 Sidewalk Curbside Ramp Type F (eff. 09/01/05)
 E 604-SWCR-09 Sidewalk Curbside Ramp Type G & H (eff. 09/01/05)
 E 604-SWCR-10 Sidewalk Curbside Ramp Type I (eff. 09/01/05)
 E 604-SWCR-11 Sidewalk Curbside Ramp Type L (eff. 09/01/05)
 E 604-SWCR-12 Sidewalk Curbside Ramp Improved Access (eff. 09/01/05)
 E 604-SWCR-13 Sidewalk Curbside Ramp Quantity Estimate (eff. 09/01/05)



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CHAPTER 03400 STORM SEWER PIPES AND OPEN CULVERT MATERIALS

03400.03
Manholes

Manholes, Inlets, and Other Structures

Storm sewer manholes and inlets shall be constructed of precast reinforced concrete. Material and construction shall conform to the latest edition of the Indiana Department of Transportation (INDOT) Standard Specifications, Sections 702 and 720.

Manholes for manholes, junction chambers, diversion chambers, and miscellaneous concrete structures shall comply with the following:

1. Concrete shall be Portland cement and shall meet the requirements of ASTM Specification C150, A63.130, and A63.131. Concrete for precast manhole sections shall be 3000 psi concrete. Manhole blocks shall use 4000 psi concrete. Ready-mix concrete shall conform to ASTM C194, Alternate 2. Maximum size of aggregate shall be 3/4 inch. Slump shall be between 2 and 3 inches.
2. Forms for chamber and structures shall be physical or other approved material. Steel forms shall be used for the inside face of manhole blocks. Concrete structures shall be permitted with approval from the WPPWD.
3. Reinforcing steel shall conform to ASTM A615, Grade 60 deformed bars, or ASTM A616 Grade 60 deformed bars.
4. Mortar Materials:
 1. Sand - ASTM Designation C144, passing a No. 8 sieve.
 2. Cement - ASTM Designation C150, Type 1.
 3. Water - shall be potable.

The manufacturer shall provide openings for screens entering and leaving the manhole. Any additional openings needed to be made in the field shall be made by drilling holes at least 1/2 inch in diameter with a maximum spacing of 3 inches.

Manhole steps shall be made from a steel reinforcing rod encapsulated in a copolymer polypropylene resin. The manhole steps shall equal or exceed DSD requirements.

Any other special manholes, junction chambers, diversion chambers, and miscellaneous concrete structures shall be constructed as detailed on the drawings.

Manhole bases shall be set on a minimum of six (6) inches of 8 aggregate.

Concrete end sections shall have a minimum of a twenty-four (24) inch precast toe plate bolted to the end section per Standard Detail (SD)-300. Corrugated end sections with toe plates shall require WPPWD approval.

Catch Basins

During construction, precautionary measures such as adequate screening of grass shall be maintained to filter earth and other materials from the catch basins.

Catch basins for sediment control, located to be identified by a Professional Engineer, and approved by the WPPWD. Catch Basins shall be located within easily accessible dedicated enclosures or right of way of sufficient size to facilitate the required maintenance of these structures.

03400.2

gasket material shall conform to all requirements of ASTM F477. As an alternative, pipe joints utilizing e-coupled couplings bands will be accepted provided the minimum AASHTO requirements for sanitary joint tightness are also achieved.

Storm sewer pipe shall be of the size shown on the drawing and shall meet all requirements of these specifications. Subsurface drains in water shall have clearances, unimpeded every 300 feet, changes in direction, high points, and dead ends.

03400.3

CHAPTER 03500 INSTALLATION OF STORMWATER FACILITIES

SECTION 03501 GENERAL

03501.01

Pipe Cover, Grade, and Separation from Sanitary Sewers

Pipe grade shall be such that, in general, a minimum of 2.0 feet cover is maintained over the top of the pipe. If the pipe is to be placed under pavement, then the minimum pipe cover shall be 2.5 feet from top of pavement to top of pipe. Underdrain slopes shall be maintained between inlets, manholes and inlets to manholes. Final grade shall be set with full consideration of the capacity required, sedimentation problems, and other design parameters. Minimum and maximum allowable slopes shall be those capable of producing velocities of between 2.5 and 10 feet per second, respectively, when the sewer is flowing full. Maximum permissible settlement for various storm sewer materials are listed in Table 03501-1. A minimum of 18 inches of vertical separation between storm sewers, water and sanitary sewers shall be required. When this is not possible, the sanitary sewer must be encased in concrete or ductile iron pipe. The concrete encasement and its relation to the manhole, water class pipe must be used for the storm and sanitary sewers. Minimum horizontal separation between storm sewers, water and sanitary sewers shall be 10.0 feet and 8.0 feet to the structures.

03501.02

Alignment

All manholes and inlets must be pre-stamped with an appropriate message per the City of Westfield Public Works Department Standards and Specifications. Manholes and/or inlets shall be installed to provide better access to continuous underground storm sewers for the purpose of inspection and maintenance. The casing access minimum inside diameter shall be no less than 22 inches on both sides of the SSD. With a minimum trench width of twelve (12) inches.

03501.03

Manholes/Inlets

Storm sewers shall be straight between manholes and/or inlets.

03501.04

Installation and Workmanship

Bedding and backfill materials around storm sewer pipes, surface drains, and the associated structures shall be according to the City of Westfield Public Works Department Standards and Specifications. The specifications for the construction of storm sewers and subsurface drains, including backfill requirements, shall be less stringent than those set forth in the latest edition of the INDOT Standard Specifications. Additionally, ductile iron pipe shall be laid in accordance with American Water Works Association (AWWA) C-900 and clay pipe shall be laid in accordance with other American Society of Testing Materials (ASTM) C476 or the appropriate American Association of State Highway and Transportation Officials (AASHTO) specifications. Dipslags on newly installed storm systems will not be allowed. Also, infiltration from cracks, missing pieces, and joints shall not be allowed. Variations from these standards may be justified and receive approval from the WPPWD. Notification must be made to WPPWD inspectors at least 48 hours prior to installation. All structures shall require inspection prior to backfill.

03501.05

Special Hydraulic Structures

Special hydraulic structures required to control the flow of water in storm runoff drainage systems include junction chambers, drop manholes, silt/float basins, and other special structures. The use of these structures shall be limited to those locations justified by master planning and by a study and through hydraulic engineering analysis. Certification of special structures by a certified Structural Engineer may also be required.

03501.06

Connections to Storm Sewer System

Unless otherwise approved, perforated subsurface drain tiles, footer drains, or sump pumps shall be connected to a storm structure. Storm sewer connections shall be provided by either trench or drilled holes, which are to be a minimum of two (2) inches larger than the O.D. of the connecting tile. Drain tile connections shall be made with either "Tee" or "Wye" connections.

03501.07

Manholes and Other Structures

Manholes and other structures are to be constructed at locations shown on the drawings and to accordance with the following specifications:

03501.08

Concrete Curb or Wall

Concrete curbs shall be constructed of Class "A" concrete and of the design shown on the detailed drawings.

03501.09

Manholes and Other Structures

Each pipe run shall be laid in a firm foundation of bedding material and backfilled and bedded with care.

03501.10

Laying Pipe

All pipes shall be so supported to withstand damage due to handling immediately before being lowered into the trench. Any pipe found to be damaged or damaged will be rejected and shall be removed immediately from the site of the work.

03501.11

Manholes and Other Structures

Each length of pipe shall be mechanically pulled "home" with a winch or crane along against the section previously laid and held in place until the trench and bedding are prepared for the next pipe section. Care shall be taken in laying the pipe so as not to damage the bell or the spigot end of the pipe.

Reinforced Concrete Pipe and Fittings

Reinforced concrete pipe and fittings shall conform to ASTM C76, latest revision, for circular pipe and ASTM C597 for fittings to be elliptical pipe.

Reinforced concrete pipe and fittings for normal conditions shall be reinforced in accordance with ASTM C76, Class III, 16" or 18" Wall B (minimum). Acceptance shall be in accordance with Subsection 4.1.1 of ASTM C76.

Circumferential reinforcing in circular pipe shall be installed. Study with approval from the WPPWD will elliptical reinforcing or combination of elliptical and circumferential reinforcing for pipe circular reinforcing shall be permitted. In concrete pipe.

Concrete pipe shall be stored cured and shall not be shipped from point of manufacture for at least five days after laying been cast.

Joints shall conform to the requirements of ASTM C443. Gaskets shall be of an elastomeric type having a maximum swell of 50% when tested in accordance with ASTM D471. Lubricant for jointing shall be approved by gasket manufacturer.

All rubber gaskets shall be similar to and equal to "Previs-Seal" or "T-Flow" conforming to ASTM Designation C443, latest revision. The gasket shall be stretched to the shape of the pipe and shall be the sole element depended upon to make the joint flexible and practically watertight.

Barly manhole joints in slope or travel applied forms specifically made for permanently sealing joints in surge and groove concrete sewer pipe. The material shall adhere tightly to the pipe surface and form a tight, flexible joint. The material shall have been in use for at least five years. Test results and material specifications shall be submitted to the WPPWD and shall be approved prior to use on the project.

Polyvinyl Chloride (PVC) Pipes and Fittings

Polyvinyl chloride (PVC) pipe and fittings shall comply with ASTM D3034.

Corrugated Metal Pipe and Pipe Arches

The following specifications shall govern the manufacture of the corrugated steel pipe and pipe arches.

1. Specifications for Zinc Coated (galvanized) Steel Sheets (ASTM A424).
2. Manufacture of Corrugated Steel Culverts and Underdrains (AASHTO M-36).
3. Structural Plate for Pipe, Pipe Arches, and Arches (AASHTO M-97).
4. Bituminous Coated Corrugated Steel Pipe and Arches (AASHTO M-190).
5. Steel Material (ASTM A575).

Bituminous Coated and Paved Invert Welded Seam Hot-Dipped Galvanized Steel Pipe

The pipe shall be fabricated from flat coils. The base metal, spelter coating, and fabrication shall meet the applicable requirements of AASHTO M-36. Corrugations shall be 2-2 1/2 inch pitch by 1/2 inch depth. Each pipe shall have two annular corrugations rolled in each end. After the ends are rolled, the pipe shall be coated with bituminous material (inside and outside) to a minimum thickness of 0.05 inch as required by AASHTO M-190 for Type C coating.

Bituminous coating shall be applied to the inside and outside of the pipe in a minimum thickness of 0.05 inch as required by AASHTO M-190 for Type A coating. The pipe shall be centrifugally loaded on the inside with bituminous material to form a smooth surface which fills the corrugations to a minimum thickness of 1/8 inch above the crests of the corrugations. The bituminous lining material shall meet the requirements of AASHTO M-190.

Bituminous Coated and Paved Invert Welded Seam Hot-Dipped Galvanized Steel Pipe

Cooling bands shall be the same base metal and spelter coating as the pipe. Bands shall be 0.064 inch thick and 10-12 inches wide. Bands shall be bituminous coated and shall have two corrugations 1.5 inch center to center. Bands 12 inch diameter through 30 inch diameter shall be one-piece and 36 inch diameter through 96 inch diameter shall be two-piece. Band laps 12 inch diameter through 48 inch diameter shall be joined by one galvanized bar, bolt, and clamp connector. Band laps 36 inch diameter through 96 inch diameter shall be joined by two galvanized bars, bolts, and clamp connectors.

Aluminum Alloy Structural Plate

Aluminum alloy plates and fasteners intended for use in the construction of structural plate pipe and pipe arch for storm sewers shall meet the applicable requirements of ASTM M-219. The plate shall be fabricated from aluminum alloy 5052 H141. The chemical composition of the plates shall conform to ASTM B209 alloy 5052.

The corrugations shall have a pitch of 9 inches plus or minus 3/8 inch and depth of 2-1/2 inches plus or minus 1/8 inch. The inside crown radius of the corrugations shall be not less than 2 inches.

The structural plate and pipe arches shall be assembled in accordance with the manufacturer's erection instructions and in accordance with the drawings.

Aluminized Steel Pipe and Arches

Aluminized coated corrugated steel pipe and pipe arch intended for use in the construction of storm sewers shall meet the applicable requirements of AASHTO M-36. Steel material shall meet the latest revision of ASTM A333 and AASHTO M-214. The coil from which the pipe is produced shall be coated with 1.0 ounce per square foot of commercially pure aluminum.

All pipes shall be re-inspected for soundness and damage due to handling immediately before being lowered into the trench. Any pipe found to be unused or damaged will be rejected and shall be removed immediately from the site of the work.

Unless by permission of the WPPWD not more than 100 feet of trench shall be opened at any one time. Not more than 30 feet of trench may be opened in advance of the completed pipe laying operation, and not more than one street crossing may be opened by the same trench at any one time.

No portion of a storm sewer pipe, open cut, manhole, inlet, or subsurface drain tile system shall be installed directly or indirectly onto frozen ground or with frozen backfill materials.

Where ground water is encountered, the contractor shall make every effort necessary to secure a dry trench bottom prior to installation of the storm water system. The contractor shall be required to maintain the groundwater level below the base of the excavation. The City and the Westfield Public Works Department will not assume any liability for the actions of the Developer or Contractor in the performance of the required dewatering operation. If trench conditions outlined in this section cannot be achieved, the WPPWD may terminate installation until such efforts can be achieved.

All pipes shall be laid accurately to the required line and grade as shown on the drawings, and in the manner prescribed by the pipe manufacturer and appropriate ASTM Specifications, in firm a close, consecutive joint with the adjoining pipe and to bring the invert of each section to the required grade. The spurring of pipe on block will not be permitted.

Pipe laying shall proceed upwards, beginning at the lower end of the sewer.

Practically, watertight joints are required, and the Contractor shall connect the sewers with the type of joint specified.

Joints between precast structures shall be sealed with (1) An approved rubber gasket manufactured and installed in accordance with ASTM C443, latest revision, (2) A 1/2 inch diameter non-soluble mastic (Kool Seal or approved equal) conforming to AASHTO M-190 and Federal Specifications SS 521 A, or (3) mortar or brushy rubber sealant on the outside and/or mastic sealed on the inside and beaded smooth.

The annular space between the pipe and precast structure walls shall be filled inside and outside with a gunit mixture composed of 2 parts of fine aggregate and one part of Portland Cement or Class "A" Concrete. Collars shall be formed around the annular space between the pipe and precast structure and travel and travel.

All pipes shall be bedded to described in this specification under Pipe Bedding. Bell holes shall be excavated in advance of pipe laying on the center pipe barrel will bear uniformly on the prepared subgrade.

Each length of pipe shall be mechanically pulled "home" with a winch or crane along against the section previously laid and held in place until the trench and bedding are prepared for the next pipe sections. Care shall be taken in laying the pipe so not to damage the bell or the spigot end of the pipe.

Each length of pipe shall be mechanically pulled "home" with a winch or crane along against the section previously laid and held in place until the trench and bedding are prepared for the next pipe section. Care shall be taken in laying the pipe so as not to damage the bell or the spigot end of the pipe.

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Bituminous Coated and Paved Invert Welded Seam Hot-Dipped Galvanized Steel Pipe

The pipe shall be fabricated from flat coils. The base metal, spelter coating, and fabrication shall meet the applicable requirements of AASHTO M-36. Corrugations shall be 2-2 1/2 inch pitch by 1/2 inch depth. Each pipe shall have two annular corrugations rolled in each end.

After the ends are rolled, the pipe shall be coated with bituminous material (inside and outside) to a minimum thickness of 0.05 inch. In addition, bituminous material shall be applied to form a smooth pavement in the bottom 25% of pipe and in the bottom 40% of pipe arch as required by AASHTO M-190 for Type C coating.

Smooth lined welded seam hot-dipped galvanized steel pipe shall be of an elastomeric type having a maximum swell of 50% when tested in accordance with ASTM D471. Lubricant for jointing shall be approved by gasket manufacturer.

All rubber gaskets shall be similar to and equal to "Previs-Seal" or "T-Flow" conforming to ASTM Designation C443, latest revision. The gasket shall be stretched to the shape of the pipe and shall be the sole element depended upon to make the joint flexible and practically watertight.

Barly manhole joints in slope or travel applied forms specifically made for permanently sealing joints in surge and groove concrete sewer pipe. The material shall adhere tightly to the pipe surface and form a tight, flexible joint. The material shall have been in use for at least five years. Test results and material specifications shall be submitted to the WPPWD and shall be approved prior to use on the project.

Polyvinyl Chloride (PVC) Pipes and Fittings

Polyvinyl chloride (PVC) pipe and fittings shall comply with ASTM D3034.

Corrugated Metal Pipe and Pipe Arches

The following specifications shall govern the manufacture of the corrugated steel pipe and pipe arches.

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Bituminous coating shall be applied to the inside and outside of the pipe in a minimum thickness of 0.05 inch as required by AASHTO M-190 for Type A coating. The pipe shall be centrifugally loaded on the inside with bituminous material to form a smooth surface which fills the corrugations to a minimum thickness of 1/8 inch above the crests of the corrugations. The bituminous lining material shall meet the requirements of AASHTO M-190.

Bituminous Coated and Paved Invert Welded Seam Hot-Dipped Galvanized Steel Pipe

Cooling bands shall be the same base metal and spelter coating as the pipe. Bands shall be 0.064 inch thick and 10-12 inches wide. Bands shall be bituminous coated and shall have two corrugations 1.5 inch center to center. Bands 12 inch diameter through 30 inch diameter shall be one-piece and 36 inch diameter through 96 inch diameter shall be two-piece. Band laps 12 inch diameter through 48 inch diameter shall be joined by one galvanized bar, bolt, and clamp connector. Band laps 36 inch diameter through 96 inch diameter shall be joined by two galvanized bars, bolts, and clamp connectors.

Aluminum Alloy Structural Plate

Aluminum alloy plates and fasteners intended for use in the construction of structural plate pipe and pipe arch for storm sewers shall meet the applicable requirements of ASTM M-219. The plate shall be fabricated from aluminum alloy 5052 H141. The chemical composition of the plates shall conform to ASTM B209 alloy 5052.

The corrugations shall have a pitch of 9 inches plus or minus 3/8 inch and depth of 2-1/2 inches plus or minus 1/8 inch. The inside crown radius of the corrugations shall be not less than 2 inches.

The structural plate and pipe arches shall be assembled in accordance with the manufacturer's erection instructions and in accordance with the drawings.

Aluminized Steel Pipe and Arches

Aluminized coated corrugated steel pipe and pipe arch intended for use in the construction of storm sewers shall meet the applicable requirements of AASHTO M-36. Steel material shall meet the latest revision of ASTM A333 and AASHTO M-214. The coil from which the pipe is produced shall be coated with 1.0 ounce per square foot of commercially pure aluminum.

All pipes shall be re-inspected for soundness and damage due to handling immediately before being lowered into the trench. Any pipe found to be unused or damaged will be rejected and shall be removed immediately from the site of the work.

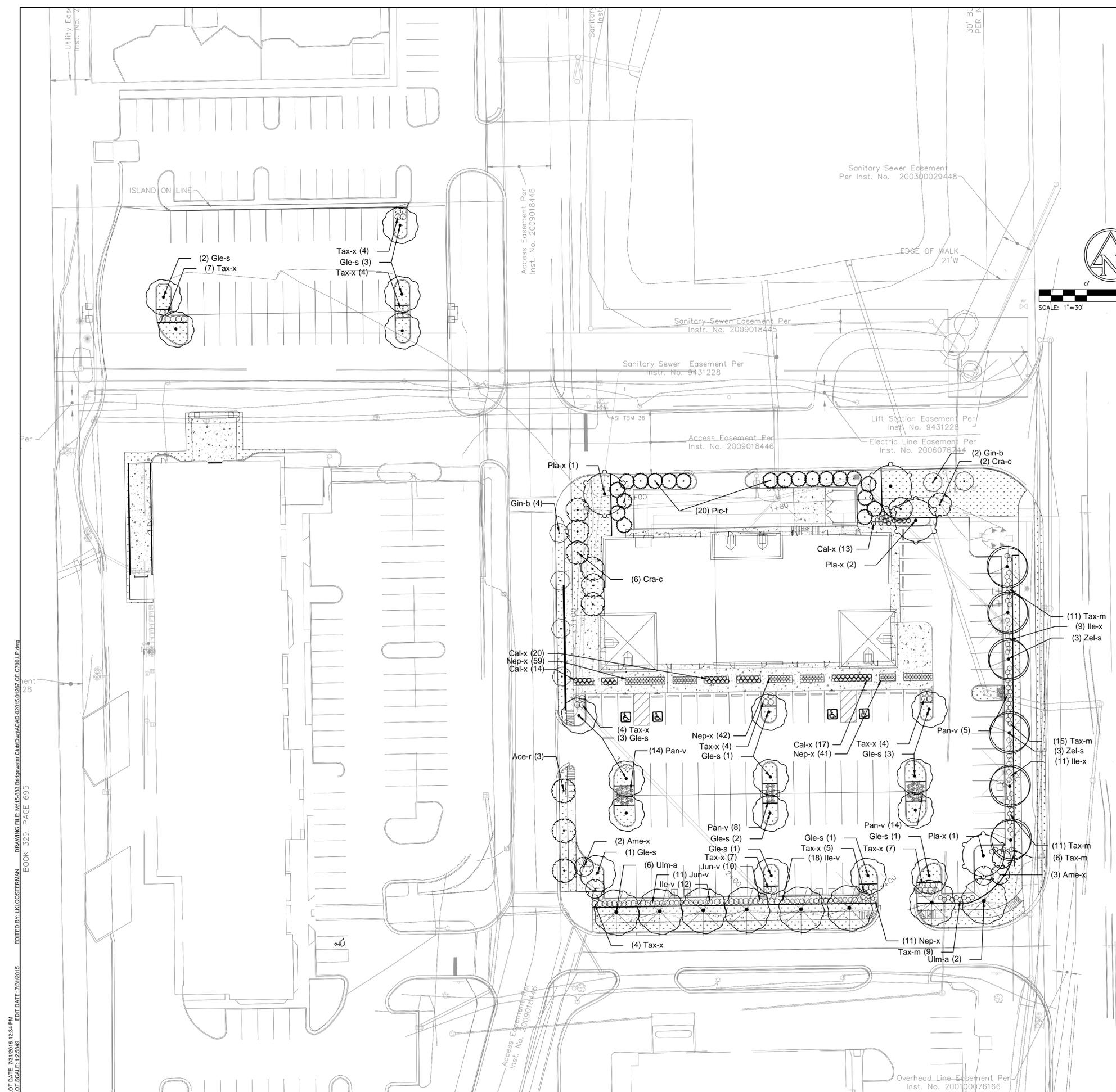
Unless by permission of the WPPWD not more than 100 feet of trench shall be opened at any one time. Not more than 30 feet of trench may be opened in advance of the completed pipe laying operation, and not more than one street crossing may be opened by the same trench at any one time.

No portion of a storm sewer pipe, open cut, manhole, inlet, or subsurface drain tile system shall be installed directly or indirectly onto frozen ground or with frozen backfill materials.

Where ground water is encountered, the contractor shall make every effort necessary to secure a dry trench bottom prior to installation of the storm water system. The contractor shall be required to maintain the groundwater level below the base of the excavation. The City and the Westfield Public Works Department will not assume any liability for the actions of the Developer or Contractor in the performance of the required dewatering operation. If trench conditions outlined in this section cannot be achieved, the WPPWD may terminate installation until such efforts can be achieved.

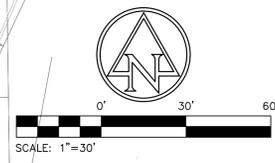
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Pipe laying shall proceed upwards, beginning at the lower end of the sewer.



GENERAL LANDSCAPE & PLANTING NOTES

- Plant material to be installed and maintained by a qualified and experienced landscape installer.
- All materials are subject to the approval of the Landscape Architect and Owner at any time. Landscape Architect to inspect all plant locations and plant bed conditions prior to installation. Stake all plant locations for review and approval by the Landscape Architect before planting. On-site adjustments may be required. Plants are to be freshly dug. Transporting of plants shall be done in a manner as to not destroy the natural shape, compromise the health, or alter the characteristics of plant materials.
- Rootballs shall meet or exceed size standards as set forth in 'American Standards for Nursery Stock'. MAIN LEADERS OF ALL TREES SHALL REMAIN INTACT. Remove from the site any plant material that turns brown or defoliates within five (5) days after planting. Replace immediately with approved, specified material.
- Plant counts indicated on drawings are for Landscape Architect's use only. Contractor shall make own plant quantity takeoffs using drawings, specifications, and plant schedule requirements (i.e., spacing), unless otherwise directed by Landscape Architect. Contractor to verify bed measurements and install appropriate quantities as governed by plant spacing per schedule.
- All plant beds shall receive 3" minimum of genuine shredded hardwood bark mulch (unless otherwise noted). Apply pre-emergent herbicide as directed by the manufacturer prior to installing mulch. Seed all areas disturbed by construction activities that are not otherwise noted to receive pavement, planting bed, or other treatment.
- The Contractor shall install and/or amend topsoil in all proposed bed areas to meet ASTM D5268 standards. Landscaper shall verify depth and quality of topsoil prior to plant installation. A minimum of 4" of topsoil is required for lawn areas; 12" for plant beds. Topsoil sources shall include the reuse of surface soil stockpiled on site, clean of roots, plants, sod, stones, clay lumps, and other extraneous or foreign materials larger than 1". Supplement with imported topsoil from off-site sources when quantities are insufficient. Do not obtain supplemental topsoil from agricultural land, bogs, or marshes. Inorganic amendments, organic amendments, and fertilizers shall be used to amend topsoil as needed for long-term plant health.
- Verify all utility locations in the field prior to beginning work. Repair all damaged utilities to satisfaction of the Owner and Operating Authority at no additional cost.
- Install all plant material in accordance with all local codes and ordinances. Coordinate with the Owner to obtain any required permits necessary to complete work. All workmanship and materials shall be guaranteed by the Contractor for a period of one (1) calendar year after Final Acceptance.
- Maintain all plant material for a three (3) month period from date of Substantial Completion. Maintenance shall include pruning, cultivating, watering, weeding, fertilizing, restoring plant saucers, spraying for disease and insects, and replacing tree wrappings. Recommended long-term maintenance procedures shall be provided to the Owner before expiration of this period.
- Satisfactory Seeded Lawn: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. (0.92 sq. m) and bare spots not exceeding 3 by 3 inches. Reestablish lawns that do not comply with requirements and continue maintenance until lawns are fully satisfactory to the Owner.



ORDINANCE CHART

ZONING: PUD - Commercial Use
 Requirements under the The Bridgewater Club Restate and Consolidate PUD ORDINANCE NO. 06-49

External Road Frontage: Gray Road 292 LF. with parking along edge
 Requirement: one shade tree or 2 ornamental trees/ 40 LF. + evergreen hedge
 Required: 7 Shade or 14 ornamental trees + evergreen hedge
 Provided: 7 Shade Trees and evergreen hedge

Loading/Dumpster Area Screening - 35 LF. along Gray Road
 Requirement: Masonry Wall at least 6' in height or Evergreen Tree hedge Minimum 6' at Planting and no more the 8' o.c. in a double staggered row. 1 Shade Tree and 2 Ornamental Trees/ 40 LF.
 Required: 4 Evergreen Trees + 1 shade tree
 Provided: 4 Evergreen Trees + 1 shade tree

From Westfield - Washington Township Zoning Ordinance MINIMUM REQUIREMENTS
 Lot Size: 89079 s.f. (2 acres)
 Greenspace: 25757 s.f.
 Requirement: 10 Shade Trees +10 Ornamental Trees + 25 Shrubs / Acre
 Required: 20 Shade Trees, 20 Ornamental Trees, and 51 Shrubs
 Provided: 39 Shade Trees, 13 Ornamental Trees + 16 evergreen trees + 51 Shrubs

Loading/Dumpster Area Screening - 141 LF
 Requirement: 6' high evergreen hedge @ 9' o.c.
 Required: 16 Evergreen Trees
 Provided: 16 Evergreen Trees

Parking Lot Interior Landscaping - 90 spaces/ 40,605
 Requirement: 50 or more spaces requires 10% or more parking lot area landscaped. 1 Tree and 4 Shrubs/ parking lot island.
 Required: 4,061 s.f. islands
 Provided: 4,165 s.f. 13 Islands w/ 14 Trees and 81 shrubs

***Due to utility and sign conflicts, two islands do not contain trees**
Parking Lot Perimeter Landscaping - south edge 17 spaces @ 10' = 170 LF.
 Requirement: 1 Tree + 10 shrubs/ 30 LF.
 Required: 6 Trees + 57 Shrubs
 Provided: 6 Trees + 59 Shrubs

Road Frontage - internal roads
 Requirement: 1 shade tree/40 LF.
 North: 291 LF. - 30 LF. (drive access)
 Required: 7 shade trees
 Provided: 3 shade trees limited space due to loading dock screening and utilities.
 West: 288 LF. - 25 LF. (drive access)
 Required: 7 shade trees
 Provided: 7 shade trees
 South: 291 LF. - 25 LF. (drive access) - 170 LF. parking lot perimeter treatment.
 Required: 2 shade trees
 Provided: 2 shade trees

ORDINANCE CHART

ZONING:
 The Bridgewater Club Restate and Consolidate PUD District
 ORDINANCE NO. 06-49

Parking Lot Interior Landscaping - Parking lot area= 41 Spaces, 23,145 s.f.
 Requirement: 7.5% landscaped. 1 Tree and 4 Shrubs/ parking lot island.
 Required: 1,736 s.f. of landscape islands
 Provided: 1,352 s.f. landscape over three islands; 5 Trees + 15 shrubs



BRIDGEWATER POINTE SHOPPES

146th Street and Gray Road Westfield, IN



CERTIFIED BY

ISSUANCE INDEX		
DATE:	07-21-2015	
PROJECT PHASE:	----	

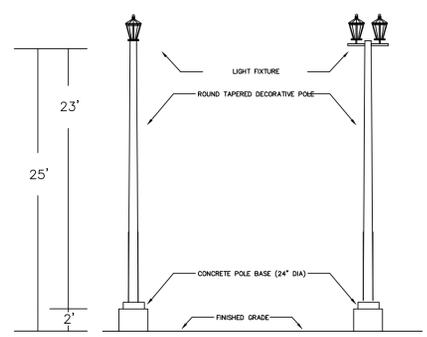
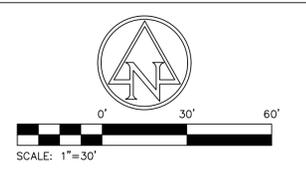
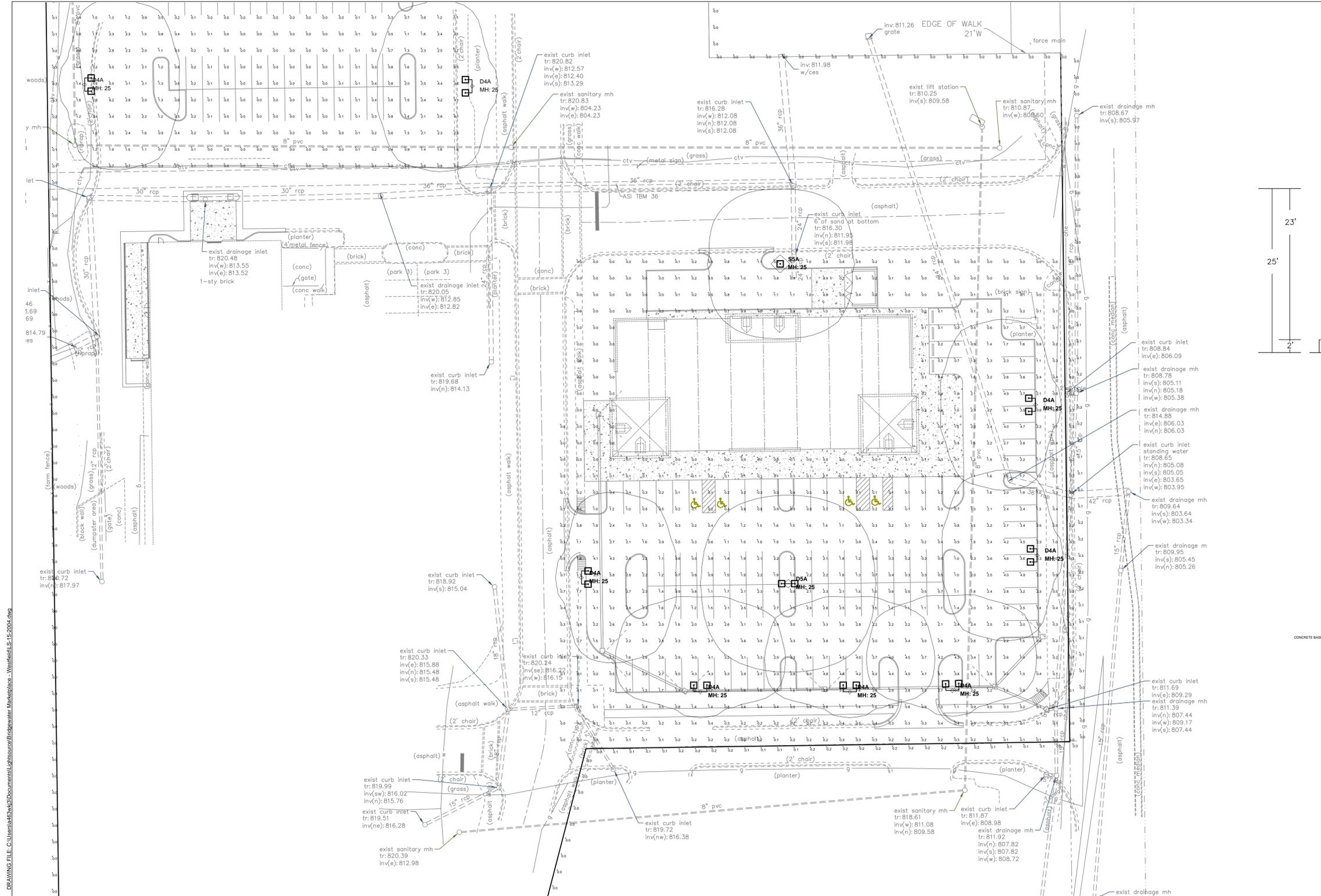
REVISION SCHEDULE		
NO.	DESCRIPTION	DATE

Project Number 2015.0126

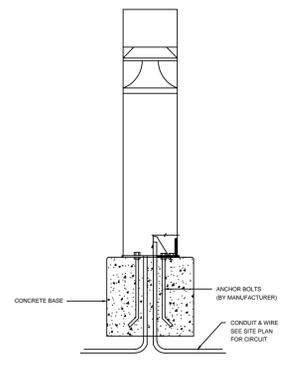
PLANTING PLAN

C700

PLOT DATE: 7/31/2015 12:34 PM
 DRAWING FILE: M:\15-883-Bridgewater Club\DWG\CAD\2015\0727_C700.LP.dwg
 BOOK 329, PAGE 695
 EDIT DATE: 7/21/2015
 EDITOR: LK LOOSTERMAN



SITE LIGHTING POLE DETAIL
NTS



POLE BASE DETAIL
NO SCALE

NOTES:
1. VERIFY ANCHOR BOLT LOCATIONS WITH MANUFACTURER'S TEMPLATE PRIOR TO BASE CONSTRUCTION.
2. MINIMUM CONDUIT SIZE AND COVER REQUIREMENT SHALL BE PER THE NEC.

Symbol	Qty	Label	Arrangement	Lum. Lumens	LLF	Description	Lum. Watts
[Symbol]	8	D4A	TWIN	7108	0.920	NZS-L-HTL17A-T4-84LC-3-4K-UNV-PT-FINISH-FN2-PC-VOLT	94
[Symbol]	1	DSA	BACK-BACK	8460	0.920	NZS-L-HTL17A-T5W-84LC-3-4K-UNV-PT-FINISH-FN2-PC-VOLT	94
[Symbol]	1	SSA	SINGLE	8460	0.920	NZS-L-HTL17A-T5W-84LC-3-4K-UNV-PT-FINISH-FN2-PC-VOLT	94

Label	CalcType	Units	Avg	Max	Min	AvgMin	MaxMin
CalcPst_1	Illuminance	Fc	1.15	6.2	0.0	N.A.	N.A.
EXISTING LOT-RECONFIGURATION	Illuminance	Fc	0.75	6.2	0.0	N.A.	N.A.
PROPERTY LINE	Illuminance	Fc	0.03	0.3	0.0	N.A.	N.A.
BACK LOT	Illuminance	Fc	0.64	1.1	0.0	N.A.	N.A.
FRONT PARKING	Illuminance	Fc	1.98	6.2	0.1	19.80	62.00
SIDE PARKING	Illuminance	Fc	1.84	5.1	0.1	18.40	51.00

BENCHMARK:

GENERAL NOTES:

- CONTRACTOR SHALL PROTECT AND NOT DESTROY THE PROPERTY CORNER MONUMENTS DURING CONSTRUCTION.
- CONTRACTOR TO VERIFY LOCATION, SIZE AND DEPTH OF EXISTING UTILITIES PRIOR TO COMMENCING ANY CONSTRUCTION. CONTACT ENGINEER IF VARIATION EXISTS.
- SEE SHEET 002 GENERAL NOTES FOR MORE INFORMATION.

CAUTION !!
THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE BASED UPON ABOVE GROUND EVIDENCE (including, but not limited to, manholes, inlets, valves, and marks made upon the ground by others) AND ARE SPECULATIVE IN NATURE. THERE MAY ALSO BE OTHER EXISTING UNDERGROUND UTILITIES FOR WHICH THERE IS NO ABOVE GROUND EVIDENCE OR FOR WHICH NO ABOVE GROUND EVIDENCE WAS OBSERVED. THE EXACT LOCATIONS OF SAID EXISTING UNDERGROUND UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY AND ALL CONSTRUCTION.

CALL TOLL FREE
"811" OR 1-800-382-5544
- INDIANA UNDERGROUND -

BRIDGEWATER POINTE SHOPPES

146th Street and Gray Road
Westfield, IN

APPROVAL PENDING
NOT FOR CONSTRUCTION

CERTIFIED BY

ISSUANCE INDEX	
DATE:	07-21-2015
PROJECT PHASE:	---

REVISION SCHEDULE		
NO.	DESCRIPTION	DATE

Project Number 2015.01267

SITE PHOTOMETRIC PLAN

E401

PLOT DATE: 7/20/2015 1:30 PM EDIT DATE: 7/20/2015 DRAWING FILE: C:\Users\jdw\Documents\LightSource\Bridgewater_Marketplace_-_Westfield\15-2004.dwg EDITED BY: A463WVJ3

