CULVERT REPLACEMENT PROJECTS

INDY DPW / ACEC RPR TRAINING

FEBRUARY 5, 2020

12550 E 62nd Culvert Replacement Project
CL-51-001

5511 Fall Creek Culvert Replacement Project
CL-12-001

Mark Kaiser, P.E.
CPESC
Construction Engineer / RPR
PROJECT: 6450 NORTH CARROLL ROAD CULVERT REPLACEMENT CL-51-003

SCOPE: REPLACE A 12’ X 4’ CAST IN PLACE STRUCTURE WITH A 12’ X 5’ REINFORCED BOX STRUCTURE WITH WING WALLS

COST: $174,897.00 (BID), $157,789.00 (FINAL)

UTILITIES: CEG GAS (4” HP PLASTIC - RELOCATED), CITY OF LAWRENCE - 12” WATER MAIN (PROTECT IN PLACE), IP&L - 13.2 KV TRANSMISSION LINE (SWITCHES INSTALLED AND DE-ENERGIZED FOR 24 HOURS), NINE STAR POWER UTILITY (CRITICAL CIRCUIT COULD NOT BE DE-ENERGIZED), AT&T BURIED CABLE (PROTECT IN PLACE)

COORDINATION: DPW, CITY OF LAWRENCE AND SCHOOL DISTRICT TRANSPORTATION DEPARTMENT
MOBILIZATION – PROJECT START UP

VERY TIGHT TRAVEL LANES AND SHORT 30 DAY WINDOW OF CLOSURE
DEMOLITION OF EXISTING STRUCTURE

DETOUR INSTALLED, CARROLL ROAD CLOSED, BYPASS
PUMPING SET UP, TEMP SESC ITEMS INSTALLED
BOX CULVERT INSTALLATION

- OVERHEAD POWER SHUT DOWN, UTILITIES PROTECTED, WING WALLS AND BOX STRUCTURE SET

- NOTICED TOP OF WING WALLS AND BOX HEADWALLS DID NOT MATCH UP AND STRUCTURE APPEARED HIGH COMPARED TO ADJACENT ROAD GRADES

- REQUESTED CONTRACTOR’S SURVEYOR TO CHECK GRADES, CONTROL POINTS AND WORKING HUBS
CONTINUED STRUCTURE INSTALLATION

- HARD ARMOR ON SLOPES
- SEED AND BLANKET INSTALLATION
- PLACEMENT OF ROAD SUBGRADE
PROJECT CONFUSION

PLAN DETAILS VS PLAN AND PROFILE

-0.25%

STRUCTURE BACKFILL, TYPE 2 LIMITS

EXISTING STRUCTURE

PROPOSED STRUCTURE

FL EL UPSTREAM = 844.35
FL EL DOWNSTREAM = 844.8

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Storm Water Culvert Replacement Projects
IN THE MEANIME

DURING SUBGRADE INSTALLATION

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SOLUTION TO THE CULVERT ELEVATION ERROR

- H&H MODELING HAD TO BE REVISITED TO VERIFY IF CULVERT WOULD STILL HANDLE PROPOSED DESIGN REQUIREMENTS

- INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT – 401 PERMIT HAD TO BE REAPPLIED FOR, DETAILING A RECOMMENDATION FOR NOT HAVING A SUMPED CONDITION IN THE CULVERT STRUCTURE

- RECOMMENDATION ACCEPTED FOR THE INSTALLATION OF GLACIAL TILL AND RIVER ROCK WITH 2’ CHANNEL IN CENTER OF CULVERT.

- CONTRACTOR TO PAY FOR MODELING REVIEW, PERMIT APPLICATION AND ADDITIONAL MATERIALS
FINAL INSTALLATIONS AND RESTORATION

-GLACIAL TILL AND RIVER ROCK INSTALLED
-GUARDRAIL COMPLETED AND CARROLL ROAD RE-OPENED
-ROADWAY PAVED AS PART SEPARATE PAVING CONTRACT WITH CITY OF LAWRENCE, DPW AND REITH RILEY
TAKEAWAYS – CULVERT REPLACEMENT AND DPW INSPECTION IN GENERAL

TRUST YOUR GUT – IF YOU HAVE THE MEANS OR EQUIPMENT CHECK GRADE YOURSELF OR VERIFY WHEN SURVEYORS WILL BE ONSITE FOR LAYOUT

WALK THROUGH THE PROJECT LIMITS WITH CONTRACTOR PERSONNEL WHOSE CAPABLE OF MAKING DECISIONS

EVALUATE AND DISCUSS INITIAL CONSTRUCTION SCHEDULE WITH CONTRACTOR, DETERMINE WHICH ITEM(S), WILL CONTROL THE PROJECT

POTENTIAL DELAYS:
PERSONNEL STAFFING
MATERIAL LEAD TIMES
UTILITIES RELOCATION TIME
UTILITY SHUT DOWNS
ROAD CLOSURE SHUT DOWN RESTRICTIONS
PROJECT: WN1280 RUCKER ROAD CULVERT REPLACEMENT
CL-51-003

SCOPE: REPLACE TWIN 42” X 30” CMP WITH A 6’ X 3’ REINFORCED BOX STRUCTURE WITH HEAD WALL AND SHEET PILE OUTLET CONTROL STRUCTURE BECAUSE OF HEAVY FLOODING IN THE AREA

COST: $344,000.00 (BID), $347,985.03 (FINAL)

UTILITIES: CEG GAS (2” PLASTIC - RELOCATED), CEG WATER (RELOCATED AND CAPPED), CEG SANITARY - 10” MAIN AND SERVICE (RELOCATION PART OF PROJECT), IP&L - DISTRIBUTION LINE (PROTECT IN PLACE)

COORDINATION: PERMANENT ROAD CLOSURE FOR OVERFLOW ROUTE
MOBILIZATION

CULVERT REMOVAL, BYPASS PUMPING, SANITARY SEWER, SHEET PILE OVERFLOW, HEADWALL AND BOX CULVERT INSTALLATION
WORK PROGRESSION

INSTALLATION OF RIPRAP, FLEX-A-MAT, HANDRAIL, ASPHALT PATCHING AND MULCHED SEEDING
FINAL RESTORATION AND CLOSURE

INSTALLATION OF GUARDRAIL, GATE AND PERMANENT ROAD CLOSURE SIGNAGE

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TAKEAWAYS – CULVERT REPLACEMENT AND DPW INSPECTION IN GENERAL

TALK TO THE ADJACENT RESIDENTS – MANY OF THESE PROJECTS ARE CREATED BECAUSE OF CONCERNED RESIDENTS, TALKING THROUGH THEIR CONCERNS AND THE CONSTRUCTION PROCESS CAN CALM THEIR INITIAL WORRIES, MOST OF THE TIME.

IF POSSIBLE, HAVE ANY AFFECTED UTILITY REPRESENTATIVES COME TO THE SITE AND REVIEW WITH RPR AND CONTRACTOR EXPECTATIONS AND VERIFY IF RELOCATION OR PROTECTION IN PLACE IS THE BEST OPTION.

BE OPEN TO ADJUST PROJECT TO BE WILDLIFE FRIENDLY.