

## الآية

قال تعالى : { فَتَعَالَى اللَّهُ الْمَلِكُ الْحَقُّ وَلَا تَعْجَلْ  
بِالْقُرْآنِ مِنْ قَبْلِ أَنْ يُقْضَىٰ إِلَيْكَ وَحْيُهُ وَقُل رَّبِّ زِدْنِي عِلْمًا }

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## ***ABBREVIATIONS AND ACRONYMS***

- **ADO** Arizona Department of Transportation
- **BDM** Bridge Design Manual
- **CWA** Clean Water Act
- **DDM** Drainage Design Manual
- **EMA** Ethiopian Mapping Agency
- **ERA** Ethiopian Road Authority
- **FHWA** Federal Highway Administration
- **GDM** Geometric Design Manual
- **GIS** Geographic Information System
- **HEC** Hydrologic Engineering Center (USACE)
- **HWDG** Highway Drainage Guidelines
- **IDF** Intensity-Duration-Frequency
- **NCR** National Census Reported
- **SCS** Soil Conservation Service
- **SRA** Swedish Road Administration
- **USNBIS** United states National Bridge Inspection Standard16



## ABSTRACT

The objective of this study was to investigate the Evaluation the impact of rain and storm to asphalt pavement drainage system on the asphalt pavement of road segment in Upper Atbara and Setit Dam Complex Township.

In Upper Atbara and Setit Dam Complex Township drainage system are not properly functioning because the area of project are very expansive soil they are many grasses defect the drainage system.

The data are photographs that show the current drainage system conditions, site visit, field survey and questionnaires that are gathered from the engineer, residences and road users about the presentation of the drainage systems during the rainy season. The important data for this research are land cover map, topographical map, geological map, and published and unpublished material.

The design peak discharge calculated and the review peak discharge calculated of the return period is not equal. From this the road around this is damaged by over flooding of the water on the road because the calculated peak discharge for the design was less than the calculated peak discharge. Therefore before the culverts are constructing the design and the review data must be checked always when its design the road it must be the design peak discharge is greater than the review peak discharge to control the floods that over follow on the road.

## ملخص

الهدف من هذا البحث التحقق من تقييم أثار مياه الأمطار والسيول في نظام تصريف مياه الطرق الداخلية للمدينة السكنية لسدي أعالي عطبرة وستيت.

في منطقة مشروع سدي أعالي عطبره وستيت نظام التصريف لا يعمل بشكل مناسب لأنها منطقة غنية وخصبة لذلك توجد حشائش كثيرة تعيق نظام التصريف.

تتكون البيانات من صور فوتغرافية توضح حالة نظام التصريف الحالية والزيارات والبحث الميداني والإستعانات التي جمعت ما بين المهندسين والسكان ومستخدمي الطريق التي تعكس نظام التصريف خلال موسم الخريف، كما توجد بيانات اخرى في هذا البحث عبارته عن خرط للأرض وخرط طبوغرافية وخرط للجيوولوجيا .

نظراً لعدم تكافؤ معدل التصميم في حالة الزرورة المقدره حسابياً مع التصميم الاخر المراجع في فترة سابقه لان الطريق الواقع في محيط المدينة سيدمر بواسطة الفيضانات الذائدة الموجودة علي جانبي الطرق،علية وقبل أن يتم الإنشاء فانه يجب مراجعة التصاميم والبيانات بإستمرار ما الأخذ في الإعتبار حالات الزرورة المعد حسابياً.فإن الطول تقترح أن من الضرورة لأداء الأعمال أعلاه يجب أن تتبع الكتيب لتصاميم المجاري المذكورة أعلاه أي عند القيام بعمل نظام التصريف للطرق،كذلك يجب إجراء صيانة ونظافة روتينية لنظام التصريف بشكل دوري وإزالة الحشائش والنفايات لتجنب المشاكل ويجب أن يراعي المصمم والمقاول المتطلبات في دليل التصاميم.